

IMPLEMENT & TRACTOR

The Business Magazine of the Agricultural, Industrial & Outdoor Power Equipment Industry

VOLUME 104 NO. 12

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Deere, Cyanamid: Closed Handling System

A "CLOSED" granular handling system is the result of a joint John Deere-American Cyanamid project. The system, a means of minimizing farm worker exposure to pesticides, will be initially marketed for use with Deere MaxEmerge planters and American Cyanamid's Counter, a systemic insecticide-herbicide.

The planter's hopper lid and the insecticide package are made so that the operator will not normally touch or inhale the pesticide during loading of the unit for use. There is a dispensing valve on the returnable pesticide package and a receiving valve on the hopper lid. Coupled, they open automatically so the material can flow in. Uncoupled, the valves close automatically.

STRONG RESOLUTIONS ISSUED—

NAEDA Tackles Dealer Policies

The Industry Relations Committee of the North American Equipment Dealers Assn. has issued a series of strong resolutions concerning Deere, Ford New Holland and Massey-Ferguson. Litigation is considered likely.

The relevant portions of the resolutions, made Oct. 20, are:

"Whereas the NAEDA board of directors have considered the effect of the John Deere Co. unilaterally amending the John Deere authorized dealer agreement to provide that at the company's sole option, a dealer can be required to separate personnel, facilities, capital or other resources.

"Whereas the John Deere dealer agreement provides that any amendment shall be effective at least 180 days following the date of mailing of such amendment.

"Whereas such amendment would in many cases force a dealer to relin-

quish the John Deere dealer agreement by requiring separation of the dealership.

"And whereas the language of the amendment can be interpreted to (See NAEDA, Page 28)

FEWA, FEMA Make Up: It's St. Louis in '90

The Farm Equipment Wholesalers Assn. has voted not to separate its convention from that of the Farm Equipment Manufacturers Assn. in 1990. The count was 44 to 15 after participating companies cast ballots during the 1989 convention in Nashville, Tenn., Oct. 31.

The two groups have met side by side, same hotel and city, since FEWA's founding in 1950. A split developed after FEWA announced its intention to form two associate member groups, one for wholesalers and one for manufacturers' representatives. FEWA then announced its intention to move its 1990 convention from the Adams Mark Hotel, St. Louis, where FEMA is also scheduled, to Kansas City.

The FEWA vote to keep its convention beside the FEMA gathering came after FEMA said it would drop plans to form the associate sections.

Full coverage of the 1989 conventions will appear in the January issue of I&T.

How Will We Hold on to Sales Margins?

By BILL FOGARTY

The veteran marketing V-P was reflecting on a scene he had witnessed at one of his top-selling dealerships. The dealer was approached by a shopper looking for a compact tractor. First question: How much?

"This dealer wouldn't answer the question," my friend recalled. "Instead, he countered with ques-

tions of his own about what the tractor would be needed for. He got his answers, but the guy kept pressing on a price. When the dealer quoted a

EDITOR'S NOTEBOOK

ballpark figure of around \$18,000, the shopper said that this other dealer down the road would give

him a tractor the same size for about \$3,000 less."

Here's where the dealer took charge of the situation. "He took that shopper around his parts department, showed him what he had, took him into the shop. Told him about all the training and experience the technicians had. Told him about the resources it took to be responsive to emergency service

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EDITOR'S NOTEBOOK

Holding On To Sales Margins

(continued from Page 1)

calls, and showed him the reality of all of it.

"He knew about the dealership offering the much cheaper price. He asked the guy if it looked like that dealer would be there in years to come. He didn't miss a trick. And when he was done, the guy was glad to get a tractor at such a good price as \$18,000."

I know the dealer and so I believe that's just what happened that day. I had a question for my marketing friend: "If you were a young blockman the day that happened, do you think that when the time came for the dealer to stand his ground, you might have taken him aside and urged him to back down some on price so as not to lose the sale to another dealer and manufacturer?"

My friend admitted that it does take some maturity and strength to take charge of the selling situation, and that maybe there isn't enough of that going around these days, either among dealers or the sup-

pliers as the ag depression went on through the 1980s. And now, who's left who knows how to talk anything but price?

***We're moving toward** a low-inventory distribution system in which dealers don't have the goods on hand the way they used to. It means that the margin-holding techniques of demonstrating and being able to offer "instant gratification" to that impulse-buying farmer don't count for as much as they did. How do you create desire with just pieces of paper and a videotape?

***There are still** too many dealers chasing after too few farmers.

***It's our own** damned fault.

***It's the manufacturers'** fault for not recognizing what their dealers need to survive.

That's enough in the way of points. All of them are true to some extent, depending on the situation, I suppose. Is there anything to be done about the situation?

I had the bright idea that it would be helpful if the dealer associations called small, regional meetings of

Dealers everywhere are feeling the margin pinch, and not just the weak or inexperienced ones.

pliers who many expect to guide them into better profit performance.

We were talking about margins, the very thin margins that dealers are experiencing these days. These are times of good farm income and tight supplies. Margins should be okay. But dealers everywhere are feeling the margin pinch, and not just the weak or inexperienced ones. The reasons they give are numerous, and they boil down to a few points:

***Manufacturers** have county retail sales data now. They use it to exert pressure on dealers to maintain market share (sometimes with hints of what might happen to the dealer if he underrepresents the brand in his territory). The result is dealers willing to give away too much margin to get deals.

***In the '80s**, we lived through a strange time in which farmers got used to our radical price-cutting. Most surviving farmers are too shrewd to let us get much margin without an intense struggle.

***Nobody** knows the guts of the products anymore, how to do pre-delivery right, how to make them do their best, how to make the customer feel good about the machine. The manufacturers gave early retirement to their corps of old pros who had the knowledge and skills. Yes, they cut their payroll costs and it helped companies survive. But oh, didn't they pay a price! Meanwhile, many dealers lost good salesmen to other

their members on the subject. There, I reasoned, there would be a community effort to show those rampant discounters the error and self-destructiveness of their ways.

Like most of my ideas, it had a fruitcake quality to it, but at least I wasn't the only one who had it. An association manager sprang the same thing on his board and was shot down promptly. For one thing, big discounters are unlikely to go to meetings at which their weaknesses are on display. Also, since the low-margin players are so numerous among dealers, I'd guess that some of them were on that board themselves.

Okay, moving on to my next idea: Why is it necessary for companies to make heroes of dealers who are selling their stuff at ridiculous margins? These dealers may be improving the manufacturer's market share, but what's going to happen when all the travel incentives have been given out and there's no money left to pay the dealership's bills? What will happen to the precious market share then?

A marketing executive with one of the majors agrees. "We have to give our dealers the opportunity to make a lot of money," he says. "Instead, we glorify those big-volume, low-margin dealers right up to the day before they go out of business. Then we sweep the 'why' of what happened under the rug."



BILL FOGARTY

He added: "It was probably okay to have a lot of in-line dealer competition back in the days of a rising market. When you're dealing with a mature market like this one, it's different."

So if they can see what the destructiveness of low-profit competition is doing to themselves as well as to a lot of their dealers, why can't manufacturers introduce a few positive policies?

For instance, are any of those sales contests ever constructed so that dealers earn points for margins as well as unit sales? If demonstrations tend to strengthen margins as well as to increase sales, can they be attached in some way to the incentive programs?

Far more meaningful than that would be a basic look at marketing policies and practices. What did the company go to the trouble of building a dealer organization for, anyway? Was it so that they could beat each other into oblivion?

For some companies, the idea has been to let the brute forces of marketplace attrition be the total determinant of who makes it and who fails. (And then, strangely, they've been known to go out and appoint dealerships where experience had indicated they shouldn't. Perhaps they were worshiping that golden idol, Market Share, too much.)

Wouldn't it make more sense to have a plan as to how many and where the pins in the wall map ought to be in the year 1995 or 2000?

In the industrial equipment field, we hear about some companies having an arrangement with their dealers granting exclusive territories. If a dealer in area A sells a machine to a customer in area B, the dealer for area B gets a slice of the margin. This recognizes that the B dealer may be expected to fulfill some service responsibilities later. It also means that the A dealer is only going to cut the price so much. Reasonable margins are achieved.

This sort of system isn't a part of the farm equipment marketing mainstream. It might have some negatives mixed in with positives. But in view of what's been happening, isn't it worth some exploration?

What's the function of sales personnel in the field, and how are their performances measured? Are they there to teach and counsel in

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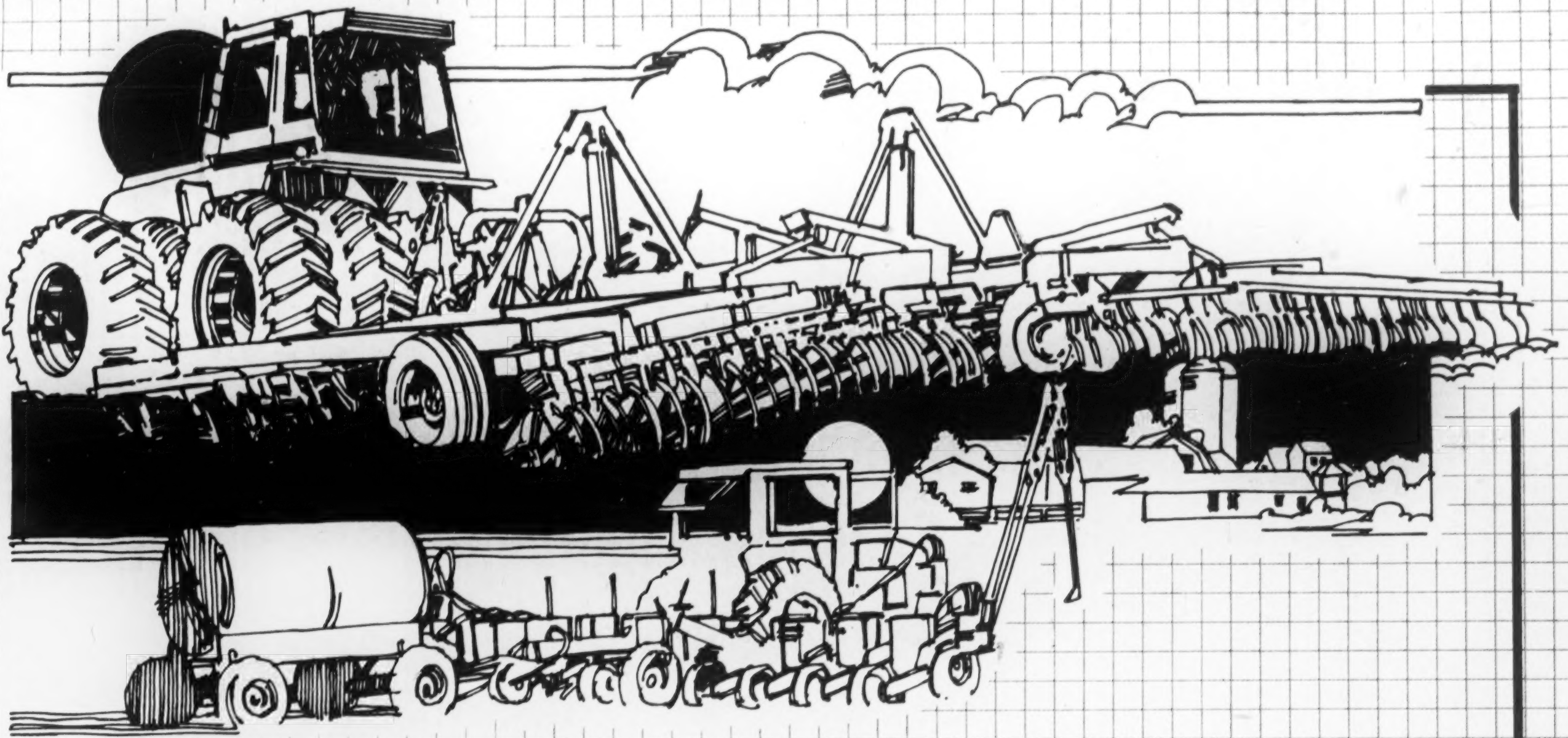
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I&T's 52nd ANNUAL MARKET STATISTICS



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Principal Machines on Farms — 1989

STATE	WHEEL TRACTORS			SELF-PROPELLED COMBINES			CORN HEADS			POWER ELEVATORS	MANURE SPREADERS	CORN & COTTON PLANTERS	GRAIN DRILLS	MOLDBOARD PLOW	SIDE DELIVERY RAKES
	1978 Census Number	1982 Census Number	Estimated July 1, 1989 Number	1978 Census Number	1982 Census Number	Estimated July 1, 1989 Number	1978 Census Number	1982 Census Number	Estimated July 1, 1989 Number						
Maine.....	13,741	13,569	13,225	388	320	265	183	181	165	4,815	2,815	280	760	7,595	5,235
New Hampshire.....	4,877	5,097	5,125	14	8	5	64	50	40	2,270	1,800	250	50	2,595	2,215
Vermont.....	14,637	15,274	15,315	156	76	59	346	374	360	7,325	5,675	1,425	285	8,775	6,610
Massachusetts.....	9,840	9,956	9,830	26	23	18	113	145	140	3,285	2,050	780	95	5,250	3,150
Rhode Island.....	1,462	1,364	1,275	13	6	4	17	13	5	455	240	90	25	610	285
Connecticut.....	7,865	8,421	8,535	86	53	38	157	98	70	3,825	2,205	915	70	4,985	2,225
New York.....	120,215	119,498	117,120	5,775	6,030	6,000	3,401	3,904	3,960	63,740	36,265	17,525	24,020	69,495	42,910
New Jersey.....	20,655	20,554	20,160	1,086	1,011	930	532	593	580	5,610	2,170	2,140	2,200	14,480	3,595
Pennsylvania.....	137,998	136,505	133,430	9,674	9,707	9,470	4,409	5,408	5,620	67,900	37,520	30,195	36,055	88,280	44,255
Delaware.....	8,348	8,012	7,815	1,314	1,342	1,330	1,003	1,006	955	3,605	1,590	1,890	1,820	5,570	940
Maryland.....	36,251	36,951	36,650	3,518	3,279	3,071	2,732	2,840	2,760	14,975	7,560	7,705	7,945	24,970	8,050
NORTHEAST.....	375,889	375,201	368,480	22,050	21,855	21,190	12,957	14,612	14,655	177,805	99,890	63,195	73,325	232,605	119,470
Ohio.....	198,865	193,367	187,230	33,449	33,200	32,245	24,438	26,403	26,160	116,730	50,740	57,160	57,430	141,900	50,360
Indiana.....	176,767	167,563	159,845	37,403	34,646	32,400	32,638	31,391	29,140	115,860	44,870	58,615	46,785	121,180	37,165
Illinois.....	277,604	262,112	253,240	63,230	61,411	59,085	55,793	55,636	53,035	176,400	65,630	85,745	58,995	157,195	48,225
Iowa.....	323,132	305,334	293,555	55,586	57,726	57,805	53,030	57,046	56,425	186,300	89,570	95,350	54,725	187,295	81,515
Missouri.....	198,225	193,758	188,990	33,378	32,957	31,915	23,056	21,834	20,210	82,590	50,350	45,675	47,560	132,025	48,135
CORN BELT.....	1,174,593	1,122,134	1,082,860	223,045	219,940	213,450	188,955	192,310	184,970	677,880	301,160	342,545	265,495	739,595	265,400
Michigan.....	148,063	146,655	143,955	18,919	21,060	21,275	11,076	13,583	14,315	82,790	33,105	34,665	46,200	114,405	39,495
Wisconsin.....	252,594	243,827	236,180	18,262	19,215	19,220	8,458	11,939	13,275	130,605	76,015	61,120	58,895	146,550	82,580
Minnesota.....	227,920	264,581	254,615	44,841	45,847	45,370	27,197	31,098	31,715	146,280	68,765	73,575	68,290	158,065	79,865
LAKE STATES.....	678,577	655,063	634,750	82,022	86,122	85,865	46,731	56,620	59,305	359,675	177,885	169,360	173,385	419,020	201,940
North Dakota.....	120,191	108,103	102,280	30,782	27,546	25,850	1,619	2,708	3,055	70,890	18,710	13,710	54,050	57,975	20,830
South Dakota.....	111,485	105,699	99,960	16,503	16,961	16,785	7,759	9,606	10,315	62,950	26,145	27,745	30,610	58,170	21,205
Nebraska.....	175,569	164,308	158,150	35,083	34,032	32,700	24,623	25,484	25,255	97,560	40,060	41,435	39,230	82,565	32,215
Kansas.....	157,327	149,870	144,435	47,142	46,662	45,285	9,150	8,321	7,265	104,080	33,400	20,085	63,735	83,820	33,085
GREAT PLAINS.....	564,572	527,980	504,825	129,510	125,201	120,620	43,151	48,119	45,890	335,480	118,315	102,975	187,625	282,530	107,335
West Virginia.....	24,901	27,110	27,595	479	562	605	265	471	490	6,275	7,570	4,775	3,340	17,275	8,830
Kentucky.....	157,432	163,176	162,310	10,568	11,466	11,685	8,382	9,924	10,255	24,230	24,970	35,150	10,315	98,150	28,620
Tennessee.....	120,161	126,365	128,290	10,765	11,227	11,195	5,581	6,508	6,690	14,940	18,220	47,505	12,880	63,690	22,810
Virginia.....	83,836	88,511	88,525	5,878	6,224	6,235	4,255	5,061	5,150	18,455	19,490	23,655	15,540	59,140	21,740
North Carolina.....	145,863	131,488	125,025	13,297	13,820	12,175	10,326	10,618	10,245	20,220	19,080	66,720	20,830	56,820	14,850
APPALACHIAN.....	532,193	536,650	531,745	40,987	42,299	41,895	28,809	32,582	32,830	84,120	89,330	177,805	62,905	295,075	96,850
South Carolina.....	47,967	44,338	41,335	6,420	6,263	5,990	3,854	3,808	3,620	4,685	3,520	27,955	10,750	9,875	5,485
Georgia.....	79,031	75,505	72,105	9,589	8,980	8,485	7,302	6,438	5,730	13,720	5,970	35,535	9,270	28,070	9,880
Florida.....	51,099	52,346	52,030	1,726	1,742	1,690	1,112	1,307	1,330	3,635	1,075	5,450	1,605	18,195	1,790
Alabama.....	69,438	66,330	63,400	6,660	6,935	6,925	3,383	3,630	3,575	11,255	3,985	38,720	6,515	21,000	7,085
SOUTHEAST.....	247,535	238,519	228,870	24,395	23,920	23,090	15,651	15,183	14,255	33,295	14,550	107,660	28,140	77,140	24,240
Mississippi.....	72,483	70,139	68,160	9,911	9,695	9,360	527	861	970	7,700	4,545	48,085	7,670	26,525	9,090
Louisiana.....	58,373	56,883	55,260	9,624	8,468	7,665	377	286	225	2,515	2,620	16,220	6,865	19,845	5,870
Arkansas.....	84,108	81,556	79,030	13,960	12,891	12,025	292	221	180	9,400	6,395	19,985	12,250	43,850	9,800
DELTA STATES.....	214,964	208,578	202,450	33,495	31,054	29,050	1,196	1,368	1,375	19,615	13,560	84,290	26,785	90,220	24,760
Oklahoma.....	99,771	99,934	98,420	17,647	17,299	16,685	822	600	470	25,100	8,310	8,450	29,930	73,370	18,630
Texas.....	262,886	264,740	262,015	23,026	21,049	19,415	3,628	3,913	3,875	39,950	15,765	50,790	46,885	83,915	21,640
S. PLAINS.....	362,657	364,674	360,435	40,673	38,348	36,100	4,450	4,513	4,345	65,050	24,075	59,240	76,815	157,285	40,270
Montana.....	54,737	54,666	53,680	13,180	12,038	11,030	101	89	65	27,920	9,790	1,005	20,245	26,065	13,095
Idaho.....	53,552	50,575	48,365	9,843	9,309	8,780	414	344	310	24,370	12,215	2,445	14,720	31,650	15,335
Wyoming.....	19,322	20,673	20,920	1,999	1,991	1,935	171	221	230	5,010	4,190	875	3,920	14,860	4,940
Colorado.....	58,331	56,141	54,350	8,404	7,994	7,615	2,397	2,618	2,580	25,100	12,460	5,715	14,625	24,885	13,485
New Mexico.....	16,601	17,455	17,445	1,513	1,346	1,200	246	308	320	2,560	2,030	2,905	1,850	8,320	3,980
Arizona.....	11,956	12,262	12,170	509	369	275	60	94	85	1,790	860	1,745	1,350	3,190	1,335
Utah.....	21,145	21,613	21,410	1,743	1,591	1,445	186	225	225	10,020	6,755	1,560	5,215	14,375	8,860
Nevada.....	5,142	5,160	5,085	263	234	185	3	19	20	935	990	60	300	2,420	1,415
MT. STATES.....	240,786	238,545	233,425	37,454	34,872	32,465	3,578	3,918	3,835	97,705	49,290	16,310	62,225	125,765	62,445
Washington.....	53,301	59,377	61,145	8,431	8,314	8,040	470	558	570	21,660	12,880	1,685	16,365	35,145	12,910
Oregon.....	48,158	53,243	54,865	6,335	6,235	6,020	*	209	205	17,460	11,365	1,045	11,265	34,160	11,355
California.....	129,480	139,735	143,620	6,270	6,102	5,850	1,016	1,123	1,115	24,125	13,370	8,465	8,470	57,105	13,095
PACIFIC.....	230,939	252,355	259,630	21,036	20,651	19,910	1,486	1,890	1,890	63,245	37,615	11,195	36,100	126,410	37,360
TOTAL.....	4,622,705	4,519,699	4,407,470	654,667	644,262	623,635	346,964	369,115	363,350	1,913,870	925,670	1,134,575	992,800	2,545,645	980,070

*Not reported separately. 'Cutter bar type only. 'Shear-bar type. 'Does not include winders with conditioning rolls. 'Includes engines used for stationary work such as irrigation auxiliary engines on combines, balers, etc., and a small number of power units not elsewhere classified.

Tractors on Canadian Farms, 1986

(by province and pto horsepower)

Province	Under 50 hp	50-99 hp	100-149 hp	Over 150 hp	Total
Newfoundland	468	192	22	11	693
Prince Edward I.	2,449	2,910	626	80	6,065
Nova Scotia	4,392	2,941	303	94	7,730
New Brunswick	3,365	3,011	600	129	7,105
Quebec	45,202	43,269	5,800	1,819	96,090
Ontario	93,850	72,872	15,859	4,584	187,165
Manitoba	27,102	26,109	13,676	7,058	73,945
Saskatchewan	50,748	53,044	40,226	23,016	167,034
Alberta	51,362	50,685	30,171	18,261	150,479
Brit. Columbia	17,940	10,635	2,328	885	31,768
Total	296,878	265,668	109,611	55,917	728,074

POWER TRACTOR MOWERS ¹ Estimated July 1, 1989 Number	PICK-UP BALERS			FIELD FORAGE HARVESTERS ²			MOWER CONDITIONERS ¹			MOTOR TRUCKS			INTERNAL COMBUSTION ENGINES ¹ Estimated July 1, 1989 Number	CHAIN SAWS Estimated July 1, 1989 Number	
	1978 Census Number	1982 Census Number	Estimated July 1, 1989 Number	1978 Census Number	1982 Census Number	Estimated July 1, 1989 Number	1978 Census Number	1982 Census Number	Estimated July 1, 1989 Number	1978 Census Thousands	1982 Census Thousands	Estimated July 1, 1989 Thousands	Estimated July 1, 1989 Number	Estimated July 1, 1989 Number	
5,930	2,609	3,047	3,125	1,309	1,181	1,075	2,023	2,353	2,510	12.3	12.2	11.8	1,225	7,145	Maine
2,710	1,254	1,259	1,195	545	544	510	889	960	995	3.8	4.1	4.0	1,145	2,360	New Hampshire
8,055	4,082	4,167	4,010	2,707	2,569	2,340	3,777	3,866	3,860	6.6	7.5	7.7	1,595	5,940	Vermont
3,555	1,732	1,704	1,505	1,092	1,083	1,025	1,472	1,533	1,550	9.0	9.4	9.3	1,655	4,330	Massachusetts
285	181	205	195	113	93	75	124	146	150	1.3	1.3	1.3	170	600	Rhode Island
3,120	1,509	1,508	1,435	804	773	710	1,063	1,318	1,460	6.6	6.8	6.5	1,450	3,630	Connecticut
49,565	28,853	28,078	26,320	20,298	19,040	17,475	25,390	25,603	25,365	57.6	60.5	61.0	19,270	47,985	New York
4,095	2,194	2,260	2,190	1,093	1,165	1,140	2,275	2,386	2,410	14.4	15.2	15.3	2,125	5,710	New Jersey
54,955	37,288	37,257	35,425	18,891	18,078	16,625	29,419	29,456	29,105	63.8	66.1	66.0	18,330	42,050	Pennsylvania
950	568	531	490	269	249	215	587	519	470	6.2	6.2	6.0	855	2,420	Delaware
10,175	5,581	5,719	5,500	2,852	2,670	2,465	4,653	5,136	5,310	22.8	25.9	26.9	4,145	11,710	Maryland
143,395	85,851	85,735	81,390	49,973	47,465	43,655	71,672	73,276	73,185	204.4	215.2	215.8	51,965	133,880	NORTHEAST
58,105	38,496	39,754	38,415	11,209	11,090	10,490	26,997	26,143	25,500	107.1	107.8	106.2	17,550	58,270	Ohio
45,430	23,838	23,947	22,885	6,912	6,917	6,570	15,733	15,583	15,330	114.4	112.2	109.8	18,150	62,320	Indiana
63,975	30,632	30,463	28,930	11,557	9,972	8,735	21,173	21,867	24,045	150.6	150.6	147.4	27,015	67,770	Illinois
96,540	47,389	47,776	45,960	19,393	17,638	15,950	26,375	28,401	29,300	144.0	147.7	146.4	28,760	53,865	Iowa
78,000	43,981	48,662	48,190	8,704	8,055	7,305	23,469	26,527	27,870	155.9	159.7	159.5	29,700	90,240	Missouri
342,050	184,336	190,602	184,380	57,775	53,672	49,050	113,747	118,521	122,045	672.0	678.0	669.3	121,175	332,465	CORN BELT
43,125	24,536	25,051	24,190	12,704	11,809	10,730	20,696	21,055	21,110	77.4	80.3	80.3	16,340	43,600	Michigan
93,270	58,443	58,042	55,350	43,154	43,880	42,110	51,830	51,630	50,980	98.0	99.5	98.1	31,310	88,490	Wisconsin
86,815	50,165	51,038	49,160	23,341	23,803	22,820	31,714	32,050	31,970	144.1	143.8	140.4	42,495	63,275	Minnesota
223,210	133,144	134,131	128,700	79,199	79,492	75,660	104,240	104,735	104,060	319.5	323.6	318.8	90,145	195,365	LAKE STATES
36,690	15,180	16,628	16,515	5,538	4,839	4,370	6,315	6,181	6,005	107.7	101.1	95.2	32,025	4,085	North Dakota
42,845	14,174	17,966	18,925	11,280	10,568	9,690	5,673	6,958	7,050	66.0	68.0	67.6	21,240	3,150	South Dakota
49,560	16,968	18,906	19,120	13,870	12,538	11,300	14,740	15,497	15,760	118.6	118.9	116.7	29,045	13,455	Nebraska
48,085	29,222	31,998	31,950	10,778	9,367	8,220	17,144	18,932	19,510	160.8	159.4	155.1	37,440	22,195	Kansas
177,180	75,544	85,498	86,510	41,466	37,312	33,580	43,872	47,568	48,325	453.1	447.4	434.6	119,750	42,885	GREAT PLAINS
16,905	9,119	10,550	10,770	2,094	2,323	2,295	5,035	6,033	6,450	19.2	20.5	20.6	4,550	20,780	West Virginia
45,530	31,575	35,143	35,510	7,752	7,910	7,600	23,656	23,805	23,775	119.3	125.2	126.5	14,625	42,625	Kentucky
48,795	22,028	26,506	27,520	5,202	6,313	6,550	16,834	18,734	19,315	96.4	104.7	107.6	11,270	56,510	Tennessee
29,775	17,932	21,805	22,310	6,075	6,209	5,935	12,404	14,659	15,760	62.6	68.0	69.1	10,905	46,240	Virginia
30,260	12,461	12,752	12,120	4,204	3,502	2,940	10,577	10,888	10,835	106.2	103.3	99.2	14,190	83,265	North Carolina
171,265	93,115	106,756	108,230	25,327	26,257	25,320	68,506	74,119	76,135	403.7	421.7	423.0	55,540	249,420	APPALACHIAN
9,310	4,404	4,823	4,680	1,369	1,260	1,135	3,370	4,033	4,320	36.1	34.6	32.9	5,590	23,520	South Carolina
15,515	8,671	10,407	10,720	2,652	2,717	2,610	9,176	9,465	9,450	74.3	72.6	70.1	11,520	32,440	Georgia
3,545	2,787	3,754	4,040	903	861	795	6,406	7,591	8,180	49.4	51.2	51.0	11,000	7,430	Florida
15,180	10,068	11,322	11,325	2,102	2,112	2,010	8,349	8,212	8,025	68.6	67.4	65.4	9,370	30,635	Alabama
43,550	25,930	30,306	30,765	7,026	6,950	6,550	27,301	29,301	29,975	228.4	225.8	219.4	37,480	94,025	SOUTHEAST
20,080	8,286	10,509	11,080	2,003	1,927	1,800	7,294	7,949	8,190	58.0	59.0	58.3	9,020	36,165	Mississippi
10,130	5,666	6,425	6,490	1,299	1,327	1,265	6,587	6,698	6,670	44.9	44.3	43.2	10,740	19,840	Louisiana
19,405	10,783	13,994	15,000	1,882	1,634	1,420	8,366	10,035	10,795	80.7	79.3	76.8	12,170	30,475	Arkansas
49,615	24,735	30,928	32,570	5,184	4,888	4,485	22,247	24,682	25,655	183.6	182.6	178.3	31,930	86,480	DELTA STATES
30,355	19,242	22,690	23,320	2,420	2,491	2,405	14,990	17,107	18,120	118.3	122.8	123.8	18,235	9,825	Oklahoma
44,090	26,382	33,736	34,860	5,339	5,109	4,725	32,449	39,629	36,860	239.0	249.9	261.1	54,425	19,200	Texas
74,445	45,624	56,426	58,180	7,759	7,600	7,130	47,439	56,736	54,980	357.3	372.7	384.9	72,660	29,025	S. PLAINS
20,040	11,692	12,468	12,290	2,086	2,429	2,465	7,304	8,102	8,365	67.2	68.2	67.4	16,600	11,700	Montana
19,980	12,862	12,210	11,350	2,391	2,384	2,260	9,029	8,515	8,135	56.7	57.1	55.9	13,590	13,065	Idaho
5,745	4,468	5,066	5,140	1,261	1,222	1,135	3,433	3,904	4,100	20.0	22.1	22.7	5,375	3,170	Wyoming
14,735	10,374	10,365	9,850	4,355	3,503	2,945	7,259	7,040	6,850	63.4	63.0	61.4	17,465	6,000	Colorado
4,410	3,252	3,403	3,330	774	802	775	2,317	2,395	2,415	23.9	24.6	24.4	6,530	2,975	New Mexico
1,900	1,004	6,942	1,005	298	348	345	780	861	890	15.3	16.6	16.9	4,470	505	Arizona
10,130	6,922	6,965	6,655	1,874	1,978	1,930	5,098	5,547	5,710	21.7	23.3	23.6	5,670	2,340	Utah
1,460	1,470	1,598	1,570	353	437	455	1,245	1,314	1,340	6.0	6.5	6.4	1,325	595	Nevada
78,400	52,044	53,117	51,190	13,392	13,103	12,310	36,465	37,678	37,805	274.2	281.4	278.7	71,025	40,350	MT. STATES
19,405	8,717	9,518	9,420	2,890	3,060	2,990	8,107	9,838	10,640	64.7	69.2	69.6	14,190	22,520	Washington
18,255	8,443	9,730	9,910	2,602	2,555	2,405	7,033	8,528	9,190	54.4	61.2	58.0	18,405	25,570	Oregon
22,095	6,358	6,725	6,625	2,530	2,715	2,675	7,558	9,299	10,150	134.6	147.9	151.9	55,140	31,640	California
59,755	23,518	25,973	25,955	8,022	8,330	8,070	22,698	27,665	29,980	253.7	278.3	279.5	87,735	79,730	PACIFIC
1,362,865	743,841	799,472	787,870	295,123	285,069	265,810	558,187	594,281	602,145	3,349.9	3,426.7	3,402.3	739,405	1,283,625	TOTAL

Equipment on Canadian Farms, 1986

Province	S-P Combines	Pull Combines	S-P Swathers	Pull Swathers	Balers (smaller bales)	Balers (larger bales)	Mower- conditioners	Forage Harvesters	Grain Dryers
Newfoundland	3	-	4	16	149	5	113	30	-
Prince Edward I.	756	369	29	61	1,642	202	1,295	339	357
Nova Scotia	317	61	36	90	2,227	152	1,641	416	124
New Brunswick	490	234	56	161	1,968	183	1,480	382	100
Quebec	5,823	1,285	2,552	1,501	25,428	819	18,836	8,402	5,617
Ontario	18,234	5,506	7,652	2,766	34,101	3,181	22,457	14,513	3,983
Manitoba	15,618	6,328	14,082	10,446	9,860	5,457	5,080	978	3,381
Saskatchewan	35,802	22,343	32,917	37,538	21,991	8,649	9,290	1,560	7,902
Alberta	33,454	9,516	33,760	15,384	24,624	12,954	13,860	3,449	4,690
Brit. Columbia	1,429	366	1,628	1,584	5,997	1,487	5,565	1,863	235
Total	111,926	46,008	92,716	69,547	127,987	33,089	79,617	31,932	26,389

Motor Vehicles and Specified Machines on U.S. Farms and Average Prices of Wheel Tractors, January 1, Designated Years¹

YEAR	TRACTORS (exclusive of steam & garden) ² Thousands	MOTOR TRUCKS Thousands	GRAIN COMBINES Thousands	CORN PICKERS and PICKER SHELLERS Thousands	PICK-UP BALERS Thousands	FIELD FORAGE HARVESTERS Thousands	GARDEN TRACTORS and MOTOR TILLERS ³ Thousands	WHEEL TRACTORS WHOLESALE PRICES ⁴	
								Per Unit Dollars	Horsepower Dollars
1965.....	4,787	3,030	910	690	751	316	699	\$ 3,541	\$ 56
1966.....	4,783	3,017	888	686	752	316	725	\$ 3,886	\$ 58
1967.....	4,786	3,009	867	680	748	319	750	\$ 4,257	\$ 62
1968.....	4,766	3,016	847	673	739	321	770	\$ 4,709	\$ 66
1969.....	4,712	3,004	820	657	725	314	790	\$ 4,976	\$ 71
1970.....	4,619	2,978	790	635	708	304	805	\$ 5,560	\$ 76
1971.....	4,562	2,985	760	629	698	309	815	\$ 6,190	\$ 80
1972.....	4,509	2,993	725	625	687	315	825	\$ 6,486	\$ 84
1973.....	4,477	3,006	703	618	680	324	835	\$ 6,953	\$ 85
1974.....	4,478	3,020	685	618	677	332	850	\$ 7,294	\$ 86
1975.....	4,463	3,032	666	615	666	337	870	\$ 8,459	\$ 91
1976.....	4,434	3,043	647	610	642	342	890	\$11,220	\$112
1977.....	4,381	3,052	630	605	614	346	905	\$12,692	\$124
1978.....	4,350	3,054	615	600	595	345	917	\$13,431	\$144
1979.....	4,623	3,350	655	596	744	295	927	\$16,512	\$149
1980.....	4,598	3,367	653	592	759	293	933	\$18,139	\$166
1981.....	4,573	3,385	650	587	774	291	938	\$23,308	\$199
1982.....	4,547	3,405	647	582	788	288	942	\$25,941	\$204
1983.....	4,520	3,427	644	576	799	285	944	\$34,198	\$237
1984.....	4,497	3,449	642	569	810	282	945	\$37,434	\$261
1985.....	4,480	3,467	640	561	822	280	942	\$40,730	\$290
1986.....	4,465	3,460	637	552	819	278	938		
1987.....	4,443	3,446	632	540	812	273	933		
1988.....	4,430	3,432	629	531	801	270	930		
1989.....	4,415	3,415	626	521	793	267	926		

¹SOURCE: Reports of the USDA and the Bureau of the Census. On-farm data after 1970, except 1975 and 1979, are estimated by I&T. ²Consists of Wheel and Crawler Tractors. ³Motor Tillers included after 1964. ⁴Estimated at wholesale level by dividing Value of Manufacturers' Shipments by Units Shipped and by Maximum Belt Horsepower, data are published in "Current Industrial Reports" of the Bureau of the Census. Not available after 1985. Note: Data from the 1978 Census (Jan. 1, 1979 above) and later years, reflect changes in sample coverage and are not fully comparable with earlier years.

Farm Wheel Tractor Retail Sales By State, 1984-1988

State	1984			1985			1986			1987			1988		
	2-wheel Drive	4-wheel Drive	Total Tractors	2-wheel Drive	4-wheel Drive	Total Tractors	2-wheel Drive	4-wheel Drive	Total Tractors	2-wheel Drive	4-wheel Drive	Total Tractors	2-wheel Drive	4-wheel Drive	Total Tractors
Alabama.....	2,653	10	2,663	2,872	2	2,874	3,041	—	3,041	2,943	1	2,944	2,959	2	2,961
Alaska.....	71	—	71	39	—	39	22	—	22	20	—	20	12	—	12
Arizona.....	782	30	812	1,240	29	1,269	657	16	673	638	2	640	677	8	685
Arkansas.....	3,714	91	3,805	3,683	70	3,753	3,154	55	3,209	3,083	31	3,114	3,145	105	3,250
California.....	5,946	186	6,132	4,931	74	5,005	5,138	73	5,211	4,970	49	5,019	5,963	87	6,050
Colorado.....	1,234	106	1,340	983	89	1,072	711	50	761	682	59	741	750	98	848
Connecticut.....	618	3	621	715	1	716	937	—	937	1,091	1	1,092	1,065	—	1,065
Delaware.....	248	7	255	286	7	293	351	6	357	320	4	324	369	12	381
Florida.....	4,614	19	4,633	4,543	30	4,573	4,732	31	4,763	4,375	55	4,430	4,615	68	4,683
Georgia.....	4,655	10	4,665	5,242	5	5,247	5,077	6	5,083	5,173	3	5,176	4,644	5	4,649
Hawaii.....	116	5	121	126	9	135	142	4	146	149	4	153	194	2	196
Idaho.....	1,062	117	1,179	786	83	869	483	35	518	497	17	514	490	23	513
Illinois.....	3,958	312	4,270	3,327	252	3,579	3,182	155	3,337	3,204	116	3,320	3,070	173	3,243
Indiana.....	2,801	135	2,936	2,789	113	2,902	2,784	68	2,852	2,712	46	2,758	2,348	100	2,448
Iowa.....	2,964	129	3,093	1,894	68	1,962	2,022	69	2,091	2,433	64	2,497	2,516	111	2,627
Kansas.....	2,199	342	2,541	1,739	248	1,987	1,585	134	1,719	1,591	132	1,723	1,778	268	2,046
Kentucky.....	2,945	15	2,960	3,044	23	3,067	2,643	11	2,654	2,519	8	2,527	2,506	14	2,520
Louisiana.....	3,894	48	3,942	3,419	66	3,485	2,602	15	2,617	2,430	23	2,453	2,212	66	2,278
Maine.....	615	—	615	625	—	625	806	—	806	824	—	824	903	—	903
Maryland.....	1,683	7	1,690	2,139	3	2,142	2,081	1	2,082	2,279	2	2,281	2,022	3	2,025
Massachusetts.....	621	—	621	783	—	783	999	—	999	1,188	—	1,188	1,043	2	1,045
Michigan.....	2,751	132	2,883	2,975	74	3,049	3,051	51	3,102	2,624	34	2,658	2,782	56	2,838
Minnesota.....	2,441	295	2,736	1,714	202	1,916	1,651	183	1,834	1,816	153	1,969	1,777	227	2,004
Mississippi.....	3,030	25	3,055	3,172	20	3,192	2,516	7	2,523	2,317	16	2,333	2,351	21	2,372
Missouri.....	3,036	75	3,111	3,159	35	3,194	3,290	38	3,328	3,266	43	3,309	3,268	97	3,365
Montana.....	677	195	872	602	122	724	323	103	426	340	76	416	347	79	426
Nebraska.....	1,598	99	1,697	963	63	1,026	1,258	66	1,324	1,314	64	1,378	1,585	90	1,675
Nevada.....	82	6	88	113	4	117	102	2	104	99	1	100	87	1	88
New Hampshire.....	712	1	713	946	—	946	1,139	—	1,139	1,293	—	1,293	1,117	1	1,118
New Jersey.....	1,039	1	1,040	1,062	1	1,063	1,275	—	1,275	1,337	—	1,337	1,395	1	1,396
New Mexico.....	371	19	390	529	18	547	418	9	427	444	5	449	456	6	462
New York.....	3,296	45	3,341	3,717	21	3,738	4,065	24	4,089	4,074	6	4,080	3,937	16	3,953
North Carolina.....	4,571	12	4,583	4,478	9	4,487	4,511	7	4,518	5,334	3	5,337	5,218	4	5,222
North Dakota.....	1,112	457	1,569	917	351	1,268	892	292	1,184	1,092	223	1,315	623	285	908
Ohio.....	3,887	108	3,995	4,537	56	4,593	4,364	67	4,431	4,276	25	4,301	3,758	33	3,791
Oklahoma.....	2,364	213	2,577	2,203	167	2,370	1,899	82	1,981	1,857	81	1,938	1,729	164	1,893
Oregon.....	1,705	41	1,746	1,606	36	1,642	1,699	24	1,723	1,579	11	1,590	1,612	28	1,640
Pennsylvania.....	3,717	21	3,738	4,095	16	4,111	4,524	15	4,539	4,640	9	4,649	4,462	11	4,473
Rhode Island.....	85	—	85	97	—	97	117	—	117	119	—	119	115	—	115
South Carolina.....	1,904	2	1,906	2,171	5	2,176	2,033	1	2,034	2,127	2	2,129	2,646	5	2,651
South Dakota.....	1,060	169	1,229	809	158	967	934	149	1,083	1,130	118	1,248	837	179	1,016
Tennessee.....	3,936	15	3,951	4,522	16	4,538	4,207	13	4,220	4,472	6	4,478	4,015	15	4,030
Texas.....	12,338	226	12,564	13,252	192	13,444	9,849	77	9,926	8,183	95	8,278	6,839	150	6,989
Utah.....	688	15	703	625	6	631	480	4	484	308	1	309	283	5	288
Vermont.....	509	5	514	600	2	602	625	—	625	639	—	639	612	—	612
Virginia.....	2,736	5	2,741	3,253	5	3,258	3,309	6	3,315	3,704	1	3,705	3,722	2	3,724
Washington.....	1,956	105	2,061	1,652	83	1,735	1,450	39	1,489	1,433	30	1,463	1,325	53	1,378
West Virginia.....	525	1	526	685	—	685	925	1	926	850	—	850	685	—	685
Wisconsin.....	2,821	82	2,903	2,615	60	2,675	2,225	41	2,266	1,900	23	1,923	1,844	40	1,884
Wyoming.....	302	26	328	168	18	186	149	7	156	131	8	139	105	12	117
U.S. Govt.....	530	—	530	13	—	13	29	—	29	183	2	185	368	1	369
Miscellaneous.....	590	3	593	306	—	306	250	—	250	529	—	529	835	—	835
TOTAL.....	113,759	3,975	117,734	112,761	2,912	115,673	106,758	2,037	108,795	106,531	1,653	108,184	104,017	2,729	106,746

Source: Farm & Industrial Equipment Institute. Figures do not include garden tractors, motor tillers or contractor's off-highway types.

Retail Sales of Selected Farm Equipment — Jan.-Dec., 1986, 1987 and 1988¹

(In Units)

STATE	COMBINES SELF-PROPELLED			HAY BALERS ²			WINDROWERS SELF-PROPELLED						GRINDER- MIXERS			SHEAR-BAR FORAGE HARVESTERS ¹			MOWER CONDI- TIONERS ALL-TYPES		
							POWER UNITS			TOTAL HEADS											
	1986	1987	1988	1986	1987	1988	1986	1987	1988	1986	1987	1988	1986	1987	1988	1986	1987	1988	1986	1987	1988
Alabama.....	14	10	15	78	89	86	2	—	—	2	—	—	28	28	27	6	9	2	108	80	106
Alaska.....	1	—	—	—	2	2	—	—	1	—	—	1	—	1	1	—	—	1	—	3	—
Arizona.....	13	4	2	22	23	11	30	32	30	35	33	30	2	—	—	4	5	1	4	2	3
Arkansas.....	184	244	250	110	68	103	2	—	3	2	—	3	10	5	15	—	4	—	222	140	146
California.....	60	41	47	85	65	67	153	128	195	166	142	224	1	2	—	52	34	26	54	29	25
Colorado.....	90	81	83	141	138	164	61	57	64	70	62	74	9	11	8	12	5	20	80	84	100
Connecticut.....	—	—	—	27	19	37	—	—	—	—	—	—	—	1	—	17	17	18	57	53	61
Delaware.....	7	8	17	6	16	13	—	—	1	—	—	1	—	2	3	3	3	6	11	16	16
Florida.....	5	3	5	62	42	54	—	1	—	—	1	—	3	3	5	6	6	4	54	25	28
Georgia.....	33	47	73	100	135	122	—	—	1	1	—	1	29	26	31	7	19	12	103	98	100
Hawaii.....	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—
Idaho.....	71	70	43	140	130	175	73	85	84	93	89	94	—	2	4	7	11	16	50	41	54
Illinois.....	1,120	940	653	105	117	148	3	4	3	3	6	4	176	209	210	46	61	76	302	364	390
Indiana.....	602	542	397	143	139	149	—	1	7	1	1	8	133	182	174	27	45	15	341	343	294
Iowa.....	854	881	833	127	102	157	30	28	12	29	30	15	295	553	595	67	72	94	429	518	571
Kansas.....	484	467	457	73	103	111	64	66	99	82	71	105	35	46	65	19	27	29	124	247	256
Kentucky.....	63	66	73	141	168	149	—	2	—	—	2	—	61	60	90	32	48	43	518	529	573
Louisiana.....	32	35	77	58	38	53	—	—	—	—	—	—	4	4	6	5	5	—	47	45	20
Maine.....	—	—	—	31	35	27	—	—	—	—	—	—	—	—	—	18	19	14	129	120	107
Maryland.....	53	30	42	66	73	81	6	7	10	6	7	10	6	13	11	34	34	24	100	108	136
Massachusetts.....	—	—	—	31	25	28	1	—	—	1	—	—	—	—	2	15	10	17	55	65	52
Michigan.....	144	129	81	197	125	142	13	9	13	18	8	14	77	83	60	112	100	104	363	353	346
Minnesota.....	462	457	374	308	233	314	56	50	54	65	57	53	137	175	222	153	174	181	595	510	585
Mississippi.....	86	78	89	38	44	44	—	—	—	—	—	—	9	11	10	6	7	7	52	43	54
Missouri.....	397	391	306	166	179	225	8	4	5	10	5	4	71	88	133	23	20	26	541	565	634
Montana.....	163	140	59	113	90	82	94	88	92	119	113	117	4	7	18	17	19	16	84	64	79
Nebraska.....	603	591	597	43	52	62	35	83	66	54	95	86	80	121	174	65	56	78	223	240	303
Nevada.....	—	—	—	22	17	12	20	14	22	26	19	24	—	—	—	3	7	1	13	13	13
New Hampshire.....	—	—	—	31	43	46	—	—	—	—	—	—	—	1	—	16	12	11	107	102	103
New Jersey.....	4	4	8	25	21	24	—	—	—	—	—	—	9	6	3	8	7	6	21	38	37
New Mexico.....	10	3	4	94	65	88	26	35	22	28	34	24	1	2	—	4	3	3	25	22	17
New York.....	29	32	30	287	267	296	14	17	13	17	17	15	25	23	32	221	256	256	675	725	718
North Carolina.....	98	93	120	157	177	157	—	—	1	—	—	1	19	21	27	34	32	23	302	287	258
North Dakota.....	433	444	157	16	6	11	95	72	42	130	86	50	30	55	59	44	35	43	124	141	116
Ohio.....	479	418	237	247	239	217	13	10	4	13	10	2	129	179	145	84	88	101	480	590	476
Oklahoma.....	71	61	66	110	128	161	21	34	31	22	35	38	11	16	19	4	3	2	229	196	219
Oregon.....	40	77	66	143	125	126	60	129	122	93	167	152	2	3	4	16	22	23	92	104	120
Pennsylvania.....	109	54	54	352	389	375	17	23	39	38	23	40	98	120	83	173	182	170	635	776	723
Rhode Island.....	—	—	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	—	—
South Carolina.....	26	36	65	41	66	50	—	—	1	—	—	1	7	14	21	4	8	5	86	79	80
South Dakota.....	278	270	175	34	26	36	96	77	79	106	108	90	79	92	140	63	74	134	181	130	159
Tennessee.....	53	45	65	160	182	187	—	—	1	—	—	1	35	59	57	32	19	23	431	402	430
Texas.....	206	152	150	396	280	281	23	20	18	26	21	20	53	55	54	21	16	8	611	490	485
Utah.....	7	7	3	113	129	145	51	30	52	54	36	57	4	8	7	23	21	32	97	84	81
Vermont.....	1	1	—	45	49	34	2	3	3	3	4	2	—	—	—	61	61	67	166	219	163
Virginia.....	30	24	33	126	146	129	2	3	1	2	3	2	23	25	21	66	48	52	427	515	437
Washington.....	59	67	111	158	106	179	50	62	81	74	76	94	4	1	1	17	23	28	82	81	84
West Virginia.....	1	1	—	59	81	59	—	—	—	—	—	—	9	11	9	14	12	10	87	124	86
Wisconsin.....	176	122	73	632	496	458	79	82	98	85	89	97	88	151	107	498	528	530	1,324	1,399	1,166
Wyoming.....	7	6	5	67	58	58	35	46	50	43	50	59	1	3	3	4	3	1	31	28	23
U.S. Govt.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Miscellaneous ⁴	—	—	—	6	6	—	—	—	—	—	—	—	—	—	—	1	—	—	24	9	10
TOTAL.....	7,660	7,172	5,995	5,734	5,352	5,735	1,255	1,287	1,420	1,518	1,501	1,611	1,797	2,478	2,656	2,164	2,280	2,405	10,898	11,239	11,043

Source: Farm & Industrial Equipment Institute. ¹Includes revisions for prior months. ²For making bales of under 200 lbs. ³Pull-type, mounted, self-propelled. ⁴Sales reported as miscellaneous are retail sales which cannot be classified by state or as U.S. Government. They include sales and dispositions that do not go through usual marketing channels such as gifts to non-profit organizations, intra-plant or company transfers, etc.

Dollar Value of Farm Equipment Imports by Country of Origin, Jan. 1982-June 1989

(In Thousands)

Country	Jan.-Dec. 1982	Jan.-Dec. 1983	Jan.-Dec. 1984	Jan.-Dec. 1985	Jan.-Dec. 1986	Jan.-Dec. 1987	Jan.-Dec. 1988	Jan.-June 1989
Canada.....	\$487,286	\$453,551	\$576,583	\$415,527	\$366,074	\$497,337	\$575,949	\$300,791
Mexico.....	11,349	18,563	10,099	8,159	6,218	11,419	37,008	21,360
Brazil.....	4,780	6,424	11,395	12,214	10,967	18,877	27,632	11,081
Sweden.....	3,023	2,873	4,002	3,464	4,538	4,731	4,805	2,238
Denmark.....	4,910	5,856	7,670	9,331	7,290	9,676	13,106	5,240
Netherlands.....	13,924	32,831	46,912	33,945	29,778	31,513	33,422	17,961
United Kingdom.....	93,806	163,678	217,201	207,020	234,406	256,182	366,337	195,315
Belgium.....	25,730	23,691	27,697	29,389	42,537	46,125	64,028	40,161
France.....	30,804	41,333	72,605	68,681	64,556	64,776	118,789	65,257
West Germany.....	169,087	248,015	223,651	222,756	252,740	244,560	289,718	157,000
Austria.....	—	—	2,673	2,540	3,455	4,480	6,279	1,800
Yugoslavia.....	—	—	38	205	1,251	7,766	8,968	2,077
Hungary.....	7,564	2,404	11,665	5,444	1,816	5,917	5,620	3,860
Czechoslovakia.....	1,113	1,892	5,888	5,926	6,197	3,759	6,849	4,274
Romania.....	15,461	6,088	4,701	4,409	1,921	5,326	5,710	3,331
Italy.....	95,092	99,219	152,409	122,300	118,808	128,651	154,915	87,661
Spain.....	6,541	2,946	7,124	3,996	5,978	6,254	7,436	5,775
Israel.....	2,677	2,988	4,183	7,619	7,475	8,629	9,171	4,752
New Zealand.....	9,792	11,885	11,220	10,725	8,123	11,012	12,903	2,995
Australia.....	4,662	3,209	4,568	5,421	5,941	7,159	8,429	4,749
Japan.....	181,056	204,818	309,757	355,577	418,780	420,852	388,774	209,136
China (Taiwan).....	2,913	3,617	5,175	5,132	6,066	7,297	8,322	4,716
China (P.R.C.).....	1,381	1,949	3,113	2,568	3,002	5,408	6,345	2,493
Korea.....	NA	852	742	1,256	5,667	7,456	19,842	17,378
U.S.S.R.	NA	1,255	852	1,266	3,731	5,394	9,599	7,421
TOTAL.....	\$1,179,734	\$1,347,483	\$1,729,402	\$1,557,623	\$1,630,628	\$1,834,925	\$2,206,957	\$1,191,445

Source: U.S. Dept. of Commerce, International Trade Administration, Office of Capital Goods and International Construction.

Imports of Farm Equipment by Product, 1986-1988

Product	Jan.-Dec. 1986		Jan.-Dec. 1987		Jan.-Dec. 1988	
	Quantity	Value in Thousands of Dollars	Quantity	Value in Thousands of Dollars	Quantity	Value in Thousands of Dollars
Knives & Cutting Blades.....	8,741,126	\$ 8,202	9,628,822	\$ 10,497	8,293,169	\$ 10,156
Plows & Listers.....	3,363	7,962	5,532	11,246	2,482	8,429
Cultivators & Weeders.....	32,017	25,127	52,430	30,088	56,922	32,044
Parts of Plows, Cultivators, Weeders & Listers.....	—	23,536	—	30,362	—	41,256
Harrows, Rollers, Stalk Cutters, Soil Pulverizers.....	32,442	16,987	23,565	24,614	33,147	27,020
Parts of Harrows, Rollers, Stalk Cutters, etc.....	—	12,157	—	24,224	—	31,567
Planting, Seeding & Fertilizing Machinery.....	30,288	24,074	34,137	31,550	44,900	28,168
Parts of Planting, Seeding & Fertilizing Machinery.....	—	9,858	—	11,107	—	11,130
Haying Machinery other than Mowers.....	5,347	10,588	7,650	8,002	8,217	10,561
Mowers except Lawn Mowers.....	19,060	30,191	21,865	33,601	36,236	46,867
Harvesting Machines, NES.....	6,858	47,808	8,248	58,184	8,624	55,789
Parts of Harvesting Machines.....	—	57,807	—	61,911	—	82,905
Farm Wagons & Carts.....	3,455	3,345	3,595	4,006	4,839	6,828
Agricultural Machines & Implements, NES.....	—	143,876	—	161,517	—	184,730
Parts of Agricultural Machines, NES.....	—	82,488	—	129,033	—	151,677
Tractors, Agricultural, Wheel-Type New, excluding Industrial*.....	127,964	807,047	130,734	866,824	101,922	1,056,533
Parts for Agri. Tractors.....	—	278,482	—	299,551	—	384,454
Walk-Behind Rotary Tillers.....	16,035	2,470	11,545	3,302	16,431	6,068

Source: U.S. Dept. of Commerce, International Trade Administration, Office of Capital Goods and International Construction. NES — Not elsewhere specified. *Use of the term "industrial" here is understood to refer to such machines as forklifts but not to industrial tractors as commonly defined in the farm and industrial equipment industry.

Imports of Farm Equipment by Product, Jan.-June, 1989

Product	Quantity	Value in Thousands of Dollars
Knives, Cutting Blades.....	3,934,858	\$ 6,002
Moldboard Plows (excluding listers).....	292	467
Disk Plows.....	16,668	791
Other Plows.....	4,995	10,558
Disk Harrows.....	14,264	30,868
Harrows & Scarifiers, NES.....	34,587	7,236
Tillers, rotary, walk.....	35,274	5,368
Cultivators, tractor-drawn or mounted.....	5,462	15,790
Other Cults., Weeders & Hoes, NES.....	13,594	8,356
Planters, Transplanters.....	13,244	6,974
Seeders.....	5,123	6,989
Manure Seeders & Fert. Distributors.....	30,016	9,503
Other machines for soil prep., cultivation.....	49,791	22,879
Parts of Plows.....	—	16,501
Parts or harrows, scarifiers, cults., etc.....	—	38,514
Parts of seeders, planters, transplanters, spreaders, dists.....	—	9,151
Parts of other machines for soil prep., cult.....	—	28,687
Mowers, rotary cutter, tractor-drawn.....	21,500	29,553
Mowers, other, tractor-drawn or mtd.....	7,997	11,618
Mowers, incl. cutterbar, tractor-mounted.....	4,371	9,649
Balers.....	531	3,819
Other Haying Machines.....	6,580	7,233
Combines, self-prop.....	383	7,777
Combines, pull-type.....	961	1,603
Threshing Machines.....	330	1,437
Harvesters, root crop.....	114	191
Forage Harvesters.....	145	553
Other Harvesting Machines.....	2,936	14,832
Parts of haying machinery.....	—	5,841
Parts of mowers, combines & threshers....	—	53,503
Tractors, crawler, agric.....	3,227	80,052
Under 125 HP.....	996	10,030
125-159 HP.....	263	6,148
160-259 HP.....	64	489
260 HP and over.....	394	2,088
Used.....	46,428	485,076
Tractors, wheel, new.....	1,028	7,224
Tractors, wheel, used.....	—	164,183
Parts of ag. tractors.....	11,826	2,638
Wagons and Carts.....	—	1,291
Parts of wagons, carts.....	—	—

New Agricultural Tractor Imports, Jan., 1988-June, 1989

(In Units)

Country of Origin	Under 40 HP	40-79 HP	80-99 HP	100 HP & Over	Other*	Totals
Jan.-June, 1988						
Belgium.....	10	—	1	971	1	983
Brazil.....	—	31	11	16	6	64
Canada.....	30	64	5	39	844	982
Czechoslovakia.....	171	67	65	15	—	318
France.....	4	32	38	147	5	226
Germany, West.....	10	1,903	1,289	130	16	3,348
Italy.....	538	211	116	251	313	1,429
Japan.....	16,838	517	110	28	1,043	18,536
Korea.....	173	—	—	—	—	173
Mexico.....	1	667	87	64	1	820
Romania.....	57	—	—	—	—	57
U.S.S.R.....	118	13	811	133	475	1,735
United Kingdom.....	2,621	2,757	1,571	114	679	7,742
Yugoslavia.....	86	50	—	—	2	138
Totals.....	20,721	16,257	4,104	1,909	3,437	46,428
1989						
Belgium.....	225	8	1,761	13	5	2,012
Brazil.....	3	970	56	—	121	1,150
Canada.....	75	140	101	1,195	1,585	3,096
China.....	—	—	—	—	150	150
Czechoslovakia.....	—	516	10	—	614	1,140
France.....	70	51	391	3	42	557
Germany, West.....	19	7,832	2,222	—	489	10,562
Italy.....	47	690	247	1	591	1,576
Japan.....	40,950	3,193	296	1	5,454	49,894
Korea.....	656	412	—	—	4	1,072
Mexico.....	2	1,352	1	—	1	1,356
Netherlands.....	9	82	15	—	1	107
Romania.....	278	380	—	—	705	1,363
U.S.S.R.....	1,314	1,505	129	—	232	3,180
United Kingdom.....	4,376	15,122	2,259	1	1,160	22,918
Yugoslavia.....	389	1,012	17	7	180	1,605
Totals.....	48,491	33,262	7,506	1,253	11,410	101,922

Source: U.S. Dept. of Commerce, International Trade Administration, Office of Capital Goods & International Construction. *For 1988, Other includes units whose horsepower is not specifically provided, and including garden-type tractors and roto-tillers. For 1989, it includes units whose horsepower is not specifically provided, tractors without PTO and garden tractors, but not roto-tillers.

Shipments Of Farm Machines And Equipment In Units (1982-1987)

Type of farm equipment	1987	1986	1985	1984	1983	1982
Balers, hay (all types):	10,733	10,556	7,542	10,106	6,681	10,130
Blowers (includes forage type, combination grain-forage type):	2,907	2,375	2,636	3,939	3,825	3,674
Cabs, farm tractor	3,499	2,027	2,932	8,397	12,757	19,674
Cabs, other equipment				580	671	4,739
Combines, grain, pull-type and self-propelled	9,484	8,288	7,027	11,296	13,673	22,726
Corn heads	4,485	4,291	2,829	4,388	4,121	7,228
Cultivators, corn and cotton types	6,906	4,110	8,168	9,419	8,510	14,622
Cultivators, field:						
Pull-type, folding	2,940	1,504	3,897	6,655	4,921	6,493
Mounted and non-folding pull type	1,258	1,313	1,646	2,740	2,252	2,024
Cultivators, rotary	1,072	1,058	3,282	5,028	5,041	9,986
Cultivators and weeders, other	10,901	11,891	12,818	17,040	17,519	24,347
Cutters and shredders or rotary mowers (pto):						
Flail-type	2,913	1,434	4,523	19,786	17,499	11,451
Horizontal blade-type	140,462	100,854	98,459	94,452	88,520	68,433
Diggers (shakers, windrowers), combines, peanut	1,031	1,148	1,296	1,145	1,055	974
Distributors (fertilizer):						
Dry	5,206	4,545	6,143	8,205	7,159	7,157
Liquid	2,031	2,470	4,715	7,581	6,105	5,952
Anhydrous ammonia	933	1,247	1,563	2,359	1,697	3,104
Dryers, grain, hay and seed batch type, pto or electric-motor operated	2,455	3,900	3,983	1,658	1,310	4,347
Continuous flow-type	544	765	695	942	452	835
Heated air units	3,588	6,378	9,818	7,198	7,361	22,178
Dusters, power, all types	1,277	901	971	134	98	493
Elevators, portable:						
Single chain	1,627	1,467	2,839	3,057	2,721	3,307
Double chain	6,139	8,482	5,887	1,796	2,218	2,998
Auger-type, 6-in. dia	9,269	8,188	7,939	11,468	10,255	13,874
Auger-type, 6-in. dia	7,434	8,641	6,578	6,351	6,191	7,891
Auger-type, over 6-in. dia	9,776	8,953	7,167	9,928	10,463	18,354
Elevators, stationary and other	44,404	60,069	37,749	36,229	32,762	97,680
Fans, crop drying and aeration	22,151	37,123	12,850	9,851	16,979	37,263
Grain drills, fixed-frame, all types	5,113	4,492	7,159	12,782	10,043	17,331
Grain heads for combines	9,212	9,835	9,978	14,151	14,699	24,656
Grinder-mixers, stationary and portable	3,406	1,717	1,467	2,907	4,987	4,653
Harrows, disk	11,498	12,048	17,908	25,330	23,157	27,448
Harrow sections (spike-, spring-, tine-tooth and power)	17,052	15,274	21,068	42,482	42,202	59,404
Harrows, other; rollers, pulverizers	7,583	6,325	9,388	19,051	20,352	20,982
Harvesters, beet and potato	260	195	345	486	441	586
Harvesters, forage, shear-bar type, self-propelled and pull	2,186	1,997	2,647	3,707	4,406	5,316
Harvesting machinery, other	2,915	2,986	4,073	3,989	3,028	5,031
Levelers or scrapers	2,065	1,992	2,034	4,199	4,971	4,089
Loaders, field, for baled hay	1,513	1,143	1,488	1,916	2,000	2,929
Loaders, tractor mounted, farm	14,078	20,960	17,900	26,153	18,547	17,243
Mills, feed, farm size (includes grinders and crushers of the hammer, burr or roller types)	2,537	2,073	2,416	2,623	3,334	4,206
Mixers, feed, farm size	1,983	1,360	1,671	1,894	1,886	2,293
Mowers, cutter bar-type	2,302	2,665	3,934	5,443	4,515	6,550
Mower-conditioners, self-propelled and pull-type	10,733	10,556	12,397	19,218	15,048	20,051
Planters, row crop, all types (quantity in number of rows)	34,352	20,311	37,417	58,674	34,530	108,394
Plows, chisel or sweep type:						
Pull-type	1,924	1,875	2,389	4,001	3,681	4,910
Mounted	1,777	930	1,477	2,065	2,119	4,061
Plows, disk-chisel combination	1,904	1,911	2,976	4,763	3,569	4,105
Plows, subsoiler	1,202	1,000	2,208	(NA)	(NA)	(NA)
Plows, terracing and ditching	294	417	753	1,029	1,057	1,039
Plows, moldboard, all types	1,327	1,902	1,902	4,566	(NA)	(NA)
Plows, middle busters and disk bedders	1,495	1,853	2,469	6,483	3,385	(NA)
Rakes, hay, side-delivery	4,173	5,339	8,072	9,069	7,266	10,089
Sprayers, field and row crop type:						
Power, self-propelled	1,151	1,057	1,898	1,740	1,202	2,305
Power, tractor-mounted	8,417	8,604	14,146	17,205	16,024	18,589
Power, non-tractor-mounted	4,195	4,438	5,127	6,492	5,231	5,197
Sprayers, power, not field or row crop type	6,167	6,122	4,674	4,930	5,246	6,660
Sprayers, power, air-carried	1,647	1,993	2,603	3,650	3,576	5,742
Spreaders, manure:						
Conveyor type	9,379	8,279	6,586	8,018	9,177	9,067
Tank type	2,415	2,440	2,371	3,448	2,274	2,533
Terracers, blade, or scrapers	54,879	43,679	48,071	50,645	35,483	33,651
Tillage equipment, combination roller/harrows, disk or coulter, field cultivators, disk or coulter/spring tooth	2,868	3,530	5,094	5,341	3,298	3,325
Tool bars, basic units, pull, mounted	1,402	1,511	1,729	1,663	1,267	3,446
Tractors, wheel, farm-type, 2-wheel drive, including front-wheel assist:						
Under 100 pto horsepower	9,323	13,017	12,653	15,706	14,286	20,685
100 pto horsepower and over	9,393	9,316	16,072	30,310	26,893	36,891
4-wheel drive	3,656	1,893	2,624	4,955	4,787	7,258
Wagons, farm type, chassis only, and trailer gear	23,511	18,411	17,442	24,471	21,540	24,880
Wagon boxes and racks for mounting on wagons and trailer gear						
Manual unloading or dump	15,365	13,013	14,032	14,423	10,454	9,675
Gravity unloading, grain type	8,383	7,545	5,712	6,687	5,807	9,361
Power unloading	9,667	8,694	7,912	9,304	10,040	10,310
Wagon boxes with integral running gear	2,646	1,818	2,205	2,380	2,828	3,385

In some cases, I&T has combined data because of space limitations. If you need more information from MA-35A, write us.
DATA: Current Industrial Reports, Series MA-35A, Bureau of the Census, NA -Not available or not applicable.

Value of U.S. Farm Equipment Exports by Countries of Destination

(Value in Thousands of Dollars)

Country	1985	1986
Western Hemisphere		
Canada	\$791,762	\$649,405
Mexico	214,838	76,496
Guatemala	3,719	5,034
Honduras	3,884	3,486
El Salvador	2,397	2,471
Costa Rica	5,073	3,718
Panama	3,396	5,057
Dominican Republic	4,934	11,925
Colombia	11,989	12,349
Jamaica	3,210	2,537
Venezuela	43,193	54,116
Brazil	17,707	18,447
Argentina	5,283	4,695
Bolivia	3,382	3,127
Chile	7,385	5,638
Ecuador	11,056	11,044
Peru	4,079	6,131
Paraguay	1,653	3,156
Europe		
Denmark	1,983	2,933
Sweden	3,445	3,366
United Kingdom	53,285	53,344
Netherlands	6,850	12,463
Belgium-Luxemburg	23,595	40,770
France	60,232	68,371
West Germany	56,817	51,695
Hungary	12,741	13,151
Switzerland	2,441	2,701
Spain	9,760	20,838
Italy	7,572	13,150
Greece	18,094	5,045
Soviet Union	—	10,673
Yugoslavia	—	2,924
Middle East		
Israel	13,844	7,459
Saudi Arabia	96,269	73,559
Turkey	1,975	3,534
Jordan	2,525	942
Asia and Pacific		
Thailand	687	942
Singapore	4,315	5,264
China (Taiwan)	2,635	2,727
China (P.R.C.)	6,545	11,950
Philippines	1,967	2,297
Korea	3,294	2,706
Japan	17,458	18,876
Australia	141,506	47,670
New Zealand	3,723	2,706
Africa		
Algeria	4,418	6,168
Morocco	4,148	526
Sudan	2,163	3,811
Nigeria	5,856	5,967
Egypt	22,510	15,876
Rep. South Africa	29,370	25,011
Total U.S. Exports, Farm & Industrial Equipment	\$1,854,772	\$1,466,690

Source: U.S. Dept. of Commerce, International Trade Admin., Office of Capital Goods and International Construction.

Value of Shipments, 1983-1987 Farm Tractors, Farm Machinery And Garden Equipment Including Parts, Attachments (In Thousands of Dollars)

Type of product	1987	1986	1985	1984	1983	1982
Wheel tractors farm type.....	1,043,372	893,432	1,154,527	2,045,298	1,720,680	2,215,466
Planting, seeding and fertilizing machinery.....	417,799	371,210	453,250	601,099	447,490	673,080
Harrows, rollers, pulverizers, stalk cutters.....	106,341	99,238	166,014	242,884	212,508	258,551
Plows.....	74,701	75,310	110,984	152,464	129,746	151,887
Harvesting machinery.....	1,280,016	1,230,124	1,190,831	1,424,639	1,468,807	2,069,585
Haying machinery.....	397,027	383,434	498,116	611,568	541,899	545,099
Farm dairy machines and equipment.....	86,584	77,131	92,308	105,430	116,133	110,656
Sprayers and dusters.....	224,470	212,566	244,412	252,992	228,465	257,882
Farm elevators and blowers.....	79,044	82,049	66,877	69,773	72,576	112,436
Cultivators and weeder.....	104,493	81,103	139,985	175,355	132,889	202,153
Machines for preparing crops for market or use.....	209,373	203,657	193,727	197,790	194,556	282,420
Farm poultry equipment.....	116,663	93,420	109,000	120,646	102,443	110,409
Hog equipment.....	64,983	41,964	35,938	44,038	50,490	41,946
Other barn and barnyard equipment.....	177,189	129,146	156,768	168,912	184,566	202,249
Stalk shredders and cutters or rotary mowers.....	189,275	112,073	120,581	126,797	128,443	101,971
Farm wagons, other farm transportation equipment.....	132,967	109,291	105,480	133,386	140,300	172,989
Irrigation systems.....	213,087	160,417	186,654	364,138	330,675	241,395
Total farm machinery.....	4,917,364	4,355,565	5,402,166	7,170,967	6,475,838	7,987,963
Total agricultural equipment.....	5,960,736	5,248,997	6,556,693	9,216,265	8,196,518	10,203,429
Commercial turf, mowing equipment.....	390,041	347,482	317,566	280,891	227,531	199,246
Other turf, grounds care equipment.....	75,594	65,354	59,148	52,872	35,641	38,543
Total commercial grounds equipment.....	465,635	412,836	376,704	333,763	263,172	237,789
Consumer nonriding lawn, garden, snow equipment.....	1,928,198	1,743,210	1,688,642	1,614,573	1,372,463	1,283,718
Consumer riding lawn, garden, snow equipment.....	1,925,467	1,642,630	1,466,472	1,363,481	1,102,952	964,550
Total lawn & garden equipment.....	3,853,665	3,385,840	3,155,114	2,978,045	2,475,415	2,248,268
Total farm tractors, farm machinery, commercial and consumer equipment.....	10,280,054	9,047,653	10,088,611	12,528,073	10,935,105	12,689,486

Equipment Exports Destination

(In Thousands of Dollars)

1987	1988	Jan.-June, 1989
\$646,049	\$584,645	\$386,844
67,894	121,734	74,429
4,603	5,214	3,019
4,761	6,193	3,949
2,366	2,230	1,682
3,954	5,171	3,863
7,811	3,449	1,270
14,502	19,819	8,368
17,973	17,050	7,386
5,797	3,109	4,523
57,265	62,649	15,808
22,619	24,968	9,278
15,417	8,089	3,135
2,115	657	497
8,462	12,332	10,212
6,051	7,035	3,681
5,812	9,357	1,869
2,874	1,072	281

5,797	8,918	5,285
9,882	26,197	11,118
63,063	98,173	55,199
12,052	18,096	12,174
49,830	82,298	46,664
95,630	128,925	86,751
55,058	75,788	41,379
8,763	4,626	18,763
2,149	3,795	3,450
22,150	25,172	22,934
13,218	20,352	13,205
2,169	19,936	4,121
1,175	8,602	1,862
1,616	5,417	2,413

7,232	7,341	4,253
115,555	129,930	34,035
4,905	5,210	727
2,938	2,574	751

1,590	4,212	2,260
8,057	10,967	22,458
3,304	5,627	5,938
9,634	10,096	8,107
2,525	4,838	2,258
5,929	15,053	7,451
25,949	35,305	41,933
49,110	121,834	92,347
2,108	3,022	2,005

4,680	5,855	1,148
4,156	3,696	696
5,902	5,623	2,399
4,483	3,408	2,313
4,680	3,316	3,901
24,034	40,583	21,686

\$1,579,894 \$1,911,409 \$1,163,943

Farm Equipment Exports by Type of Product

Product	Jan.-Dec. 1986		Jan.-Dec. 1987		Jan.-Dec. 1988		Jan.-June 1989	
	Quantity	Dollar Value in Thousands	Quantity	Dollar Value in Thousands	Quantity	Dollar Value in Thousands	Quantity	Dollar Value in Thousands
Combines, pull-type.....	1,208	\$25,192	1,734	\$34,099	644	\$9,766	446	\$5,300
Combines, self-propelled.....	3,729	126,771	3,623	135,010	2,333	96,119	2,850	85,736
Cultivators, tractor-drawn or mounted.....	1,323	2,972	968	2,295	1,748	4,332	1,559	2,988
Cultivators, NEC, and Weeder.....	1,254	3,504	3,713	4,812	6,031	6,902	2,583	4,113
Farm Elevators and Blowers.....	1,877	3,847	1,498	3,795	1,866	5,326	NA	NA
Farm Wagons and Carts.....	1,877	3,847	1,197	2,041	1,863	4,490	1,060	1,957
Parts for Farm Wagons and Carts.....	—	701	—	952	—	709	—	1,475
Fertilizing Machines.....	6,375	13,831	4,461	9,772	5,055	10,906	6,347	8,864
Forage Harvesters.....	1,125	20,863	1,046	22,655	1,878	30,355	1,421	27,713
Harrows, Disk.....	866	3,111	920	3,524	1,316	4,649	1,308	3,265
Harrows, NEC, & Soil Pulverizers.....	3,014	3,505	4,688	5,030	8,786	8,145	3,661	3,223
Parts for Harrows, Stalk Cutters & Soil Pulverizers.....	—	3,745	—	3,816	—	3,293	—	2,848
Harvesting Machines, NEC.....	3,858	43,489	3,603	38,503	3,915	63,930	1,330	17,455
Harvesting Machine Parts.....	—	123,102	—	115,839	—	53,509	—	22,804
Hay Balers.....	4,311	31,340	5,429	41,400	9,033	54,993	5,948	37,659
Haying Machines, NEC (incl. rakes & tedders).....	2,121	14,367	2,439	17,655	3,460	18,954	3,461	20,323
Parts for Haying Machine.....	—	12,766	—	15,703	—	23,278	—	10,911
Mowers, Cutterbar, tractor-drawn.....	1,475	3,138	985	3,042	1,659	4,930	3,904	6,297
Mowers, Rotary, tractor-drawn (excl. lawn mowers).....	9,395	6,210	11,388	5,953	14,057	8,504	26,107	13,421
Mowers, NEC, tractor-drawn (excl. lawn mowers).....	1,686	5,188	1,480	6,597	3,335	7,773	1,445	4,538
Planting Machines.....	1,799	7,342	2,134	7,216	1,818	7,152	1,946	6,142
Plows, Disk.....	672	1,418	669	1,651	597	1,511	259	847
Plows, Moldboard.....	480	1,765	1,380	4,358	1,122	4,320	166	763
Plows & Listers, NEC.....	2,486	6,627	4,247	7,609	4,369	9,083	2,443	7,460
Parts for Plows, Listers, Cultivators & Weeder.....	—	8,118	—	9,393	—	9,922	—	1,868
Seeding Machines.....	7,267	14,862	4,591	9,637	3,984	11,469	3,523	9,682
Parts for Planting, Seeding & Fertilizing Machines.....	—	11,888	—	9,763	—	17,761	—	8,010
Sprayers, Agricultural, including parts.....	—	136,554	—	179,147	—	227,752	—	139,705
Farm Tractors:								
Under 40 PTO HP.....	841	4,403	881	4,862	730	3,582	3,429*	15,502*
40-59 PTO HP.....	570	5,682	395	4,688	211	2,378	72	988
60-79 PTO HP.....	453	6,815	247	3,531	212	2,551	57	1,050
80-99 PTO HP.....	490	9,913	375	9,075	158	3,238	74	2,068
100-119 PTO HP.....	536	18,136	429	13,629	1,016	32,855	587	19,510
120-139 PTO.....	849	29,213	825	29,019	1,597	56,292	1,018	31,118
140-159 PTO HP.....	751	27,120	655	24,101	1,353	52,073	934	34,864
160-179 PTO HP.....	1,072	45,451	1,029	43,592	804	33,914	619	25,987
180 PTO HP & Over.....	1,175	75,166	912	59,430	1,016	56,686	888	45,110
Other Farm Tractors.....	1,525	21,961	2,544	26,711	2,306	31,617	1,331	14,335
Parts for Farm Tractors.....	—	454,098	—	517,150	—	680,695	—	303,738

SOURCE: U.S. Dept. of Commerce, International Trade Admin., Office of Capital Goods and International Construction. *1989 data appears to include garden-type tractors.

INDUSTRY UPDATE

Rotary Combines From MF in 1990

Massey-Ferguson will introduce a Class VI rotary combine, the MF 8570, in 1990. The machine, with a 220-hp Cummins C diesel and a 220-bu. grain tank, will be made for MF by Western Combine Corp., a subsidiary of Linamar Machine Ltd. of Guelph, Ont., at Portage la Prairie, Man. It will be distributed with an MF label through MF dealers only, according to David Pitt, Massey president.

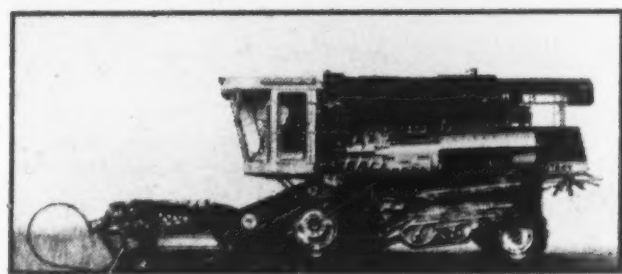
Linamar, a manufacturer of components and parts for the auto, farm and defense industries, received \$5 million (Can.) in interest-free loans from the Canadian and Manitoba governments toward what was described as a \$17 million development and assembly center.

Frank Pickersgill is president of Western Combine Corp.

The 8570 is an update of the 8560 rotary which was produced by Massey Combines Corp. before it went out of business. Western bought the rotary combine technology from Vicor, Inc., which

CHANGES...

Roger D. Mayhew is new vice president, research and development, for Wasler Engineering, Inc., West Bend, Wis.



acquired it from the MCC receiver. When Vicor later decided not to go into production, Pickersgill left Vicor and formed Western.

Western will buy many of its manufactured parts from Linamar and will subcontract the assembly and some sheet metal manufacturing to Vicor in Portage la Prairie. Vicor is in a partnership with farmers who are members of Canadian Cooperative Implements Ltd.

Features of the 8570 include load-sensing hydraulics, hydrostatic four-speed constant-mesh transmission drive, and an exclusive direct crop discharge which eliminates the need for a beater. It comes with headers for major crops, including rigid grain tables up to 30 ft., flexible grain tables up to 24 ft., and six- and eight-row corn heads.

Earlier, MF had announced that Claas, West German combine maker with a base in Indiana, and MF's former Brazilian subsidiary would provide the company with conventional type combines.

Combine Sales Continue To Outpace Year Earlier

Equipment	UNIT RETAIL SALES			January-October		
	1989	1988	% Change	1989	1988	% Change
Farm Wheel Tractors:						
2-Wheel Drive						
Under 40 HP	3,987	4,743	(15.9)	42,016	48,706	(13.7)
40 & Under 100 HP	3,107	3,354	(7.4)	29,911	28,372	5.4
100 & Under 140 HP	564	570	(1.1)	4,234	3,607	17.4
140 HP & Over	2,094	1,770	18.3	12,180	9,618	26.6
Total 2-Wheel Drive	9,752	10,437	(6.6)	88,341	90,303	(2.2)
4-Wheel Drive						
Under 200 HP	142	112	26.8	985	781	26.1
200 HP & Over	348	257	35.4	2,382	1,419	67.9
Total 4-Wheel Drive	490	369	32.8	3,367	2,200	53.0
Total Farm Wheel Tractors	10,242	10,806	(5.2)	91,708	92,503	(.9)
Combines (Self-Propelled)	1,711	991	72.7	7,137	4,881	46.2
Rectangular Balers (Bales under 200 lbs.)	388	374	3.7	6,696	5,356	25.0
Forage Harvesters (Shear Bar Type)	486	367	32.4	2,519	2,177	15.7
Mower Conditioners	740	740	.0	12,441	10,198	22.0

BRIEFLY...

Southern Turf Management will be the name of a new tabloid trade publication to be launched in January 1990 by Farm Press Publications, owner of I&T. STM will go to 15,000 grounds managers, parks administrators, sod producers, lawn care specialists and other professionals in 18 Southern states.

America's balance of trade in farm equipment moved to the favorable side for the first time in several years in July, according to the U.S. Dept. of Commerce. Exports for the first seven months were \$1,364,620,000 and imports were \$1,364,529,000. By the end of August, the balance had improved further: Exports for the year were \$1.563 billion and imports were \$1.529 billion.

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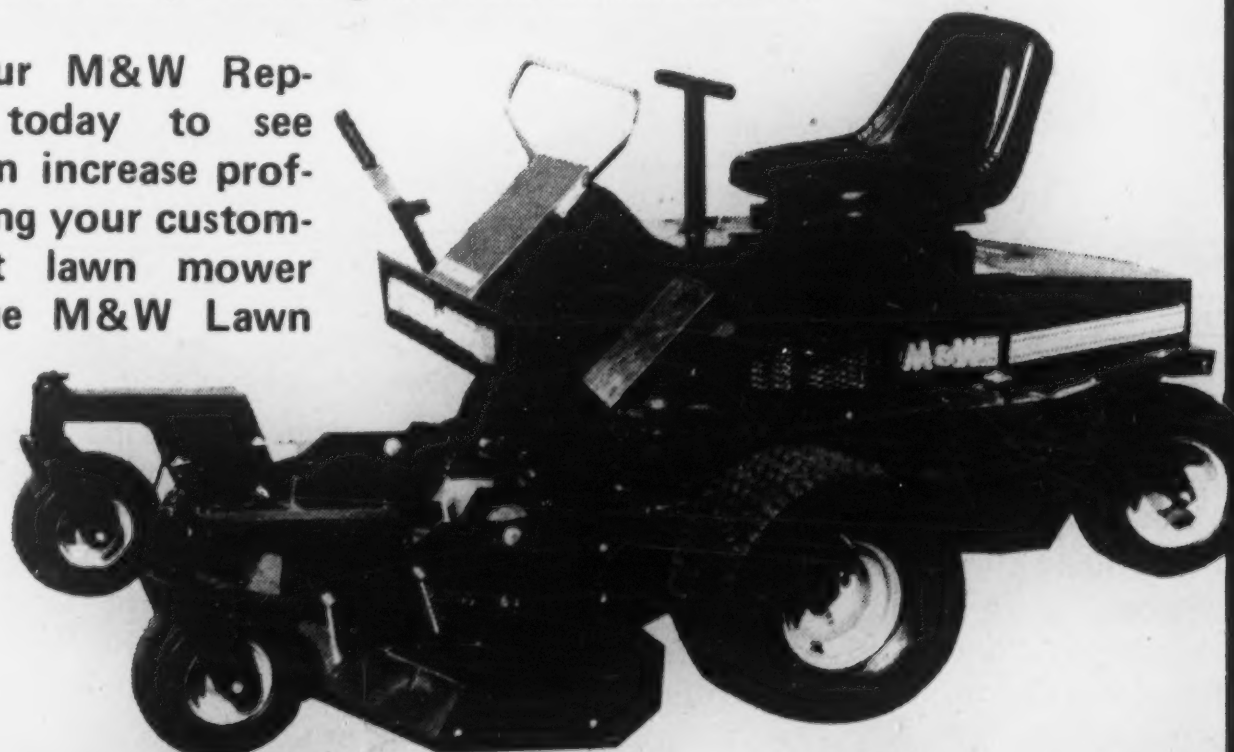
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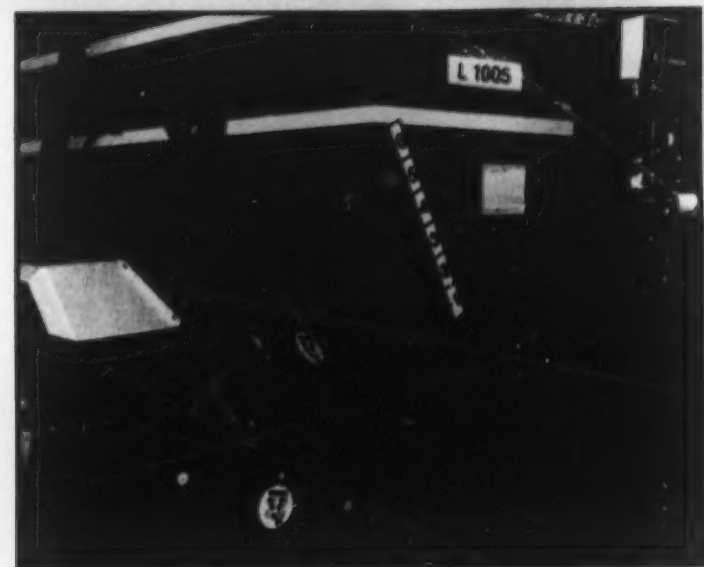


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VOLUME 105 NO. 1

JANUARY 1990

Majors Start To Think Like Shortliners

By BILL FOGARTY

This being a new decade, it's time to take a look at some directions in which this business might be going. One of the ways to dispose of this task, of course, is to pull out various look-aheads of the past 30 years, update them slightly and put out the same boring platitudes.

You know what I mean: Bland stuff like fewer, larger, more efficient and businesslike farm operations; fewer dealers with bigger territories, more skills needed; fewer manufacturers; fewer suppliers to the manufacturers. A script like that has been good and safe for at least a generation.

Even so, it hasn't always been right. And sometimes the script has been right in ways the future-lookers didn't anticipate.

The forecasts about fewer, bigger farms were so consistent that many manufacturers in this business followed them like sheep. They were caught flat-footed by the burgeoning of part-time farmers with small operations. Yes, commercial operations got bigger and fewer, but off-farm income rolled into agriculture and kept this industry alive during the past decade.

Fewer manufacturers—that was true, too, but not by much. Companies and their product lines may change owners from

(More, pg. 4)



FEMA Convention

PACKED IN for a roundtable session on farm shows at the FEMA convention, shortline manufacturers indicate they need guidance in selecting and working the exhibition circuit. Story on Page 8.

Gehl Goes Public

Gehl Co., West Bend, Wis., which posted sales of over \$120 million in 1988, is offering 2.2 million shares of its common stock at \$14 per share. Of the total, 1.65 million shares are being sold by the company and about 550,000 by selling shareholders.

Net proceeds to the company will be used to reduce outstanding debt under its revolving loan agreement.

Blunt Ellis & Loewi Inc. and Robert W. Baird & Co. are handling the public offering. It is anticipated that Gehl Co. shares will trade on the NASDAQ national market system under the symbol GEHL.

New structure. The company has also established separate business units for its Agricultural and Industrial/Construction sectors, according to Bernard Nielsen, president and CEO, and three new executives have been added.

Gary L. Blinka is vice president (See GEHL, pg. 2)

Deere's 1989 Tops \$7 Billion Mark

Deere & Co.'s fiscal year ended Oct. 31 produced total sales of \$7.22 billion, compared with \$6.24 billion in 1988. Net sales of equipment came to \$6.23 billion, up from 1988's \$5.36 billion by 16 percent. Net 1989 income was \$380 million, compared with \$315 million a year earlier.

For the fourth quarter, sales were \$2.0 billion, vs. \$1.72 billion in 1988's comparable period. Sales of equipment to dealers were \$1.74 billion in the quarter, up 17 percent. Earnings were \$103 million for the 1989 fourth period, \$80.5 million in 1988's last quarter.

Deere said that fourth quarter

results were affected by a strike at its Horicon, Wis., works, where lawn and garden equipment is made.

Net income of credit, insurance and health care operations in 1989 was \$124 million.

Deere announced that initial production tonnage has been scheduled about 5 percent higher in 1990 than actual 1989 output, with the largest increases going for lawn and grounds care and agricultural equipment. There will be lower production overseas and lower component production for outside sales, due primarily to Deere's sale of its recreational vehicle chassis business.

In a joint statement, Chairman Robert Hanson and President/CEO Hans Becherer said that retail sales of Deere equipment are expected to be higher in 1990. "Further declines in interest rates could result in an improved level of housing starts during 1990. Non-residential and public construction are anticipated to show small gains in the coming year."

Dealer receivables at the end of the fiscal year were \$2.59 billion compared to \$2.28 billion a year earlier. Inventories were at \$711 million, up \$3 million. Credit receivables rose from \$2.97 billion in 1988 to \$3.31 billion.

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Address Correction Requested

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WHAT THEY'RE SAYING

If We Can't Make A Profit From It, We Should Quit

Peter Nunn is president of BAGMA, the British dealer association. He recently said the following in his association's publication.

Few of our customers genuinely appreciate the service that has been available to them over the harvest months. Our staffs have all been working long and often unsocial hours during which they have exhibited a tremendous loyalty to their company and commitment to their trade.

During this time they have been paid more but enjoyed few bouquets. They have accepted dislocated meal times, gone without a meal, and taken jibes and even abuse from the irate and impatient

farmer who often becomes totally irrational at the time of a machine's breakdown.

How often one hears, "I don't expect you to stock everything, but I can't understand why you haven't got one of these." That customer may never imagine that a partsman may have to spend a whole morning on the phone trying to locate a particular part, during which time he's not available to serve anyone else....

The farmer enjoys a service from his machinery supplier which is only beaten by the police, fire service and ambulance service. We are not given enough credit for it. Neither do our charges properly reflect its worth.

If our service operation cannot make a useful profit contribution when our specialist skills are most in demand, we don't deserve to be in business. □

BRIEFLY...

The Soil and Water Conservation Society has given a Merit Award to Fleischer Mfg., Inc., Columbus, Neb., for "activities that notably advance the science and art of good land and water use," specifically for its development of the Buffalo line of ridge-till equipment.

Westfalia Systemat, Elk Grove Village, Ill., maker of dairy equipment and accessories, and Kipe Steel, Chambersburg, Pa., which produces dairy stalls, have formed a business venture to market the Westfalia/Kipe Side-by-Side milking parlor.

Ingersoll Products Corp., Chicago, has named Godfrey Group, Chicago, as its advertising agency of record. Ingersoll claims to be the world's largest manufacturer of agricultural disk blades.

L.R. Hoerneman is new executive director, depot operations, for the Parts Div. of J I Case's Parts & Components Group. The 25-year Case veteran is responsible for all depots in Europe and North America as for materials management in Europe and the Logistics Task Force.

Trail King Industries, Mitchell, S.D., has named Don Koebrick as Midwest district manager. He is also responsible for overseeing new dealer development and dealer training.

Promark Products, Inc., City of Industry, Calif., has acquired Turf Vac Corp. and its line of towable and riding turf and pavement vacuums. Promark makes tree-related maintenance equipment.

Yetter Mfg. Co., Colchester, Ill., is asking companies in the industry to donate one or more of their logo-bearing caps. The caps will be auctioned next Labor Day weekend with all proceeds to go to the Jerry Lewis Muscular Dystrophy Assn. Further details: Pat Whalen, marketing vice president, Yetter, 309/776-4111.

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INDUSTRY UPDATE

Canadian Unit Retail Sales

Product	1988	1989 E	1990 F
Tractors, 2WD			
Under 40 HP	4,207	3,929	3,891
40-99 HP	9,344	8,497	8,794
100 HP & over	2,333	2,910	3,061
Tractors, 4WD			
Under 200 HP	629	750	810
200 HP & over	708	907	987
All Ag Tractors	17,221	16,993	17,543
Front-wheel-assist tractors			
Under 40 HP	3,466	3,325	3,324
40-99 HP	5,141	4,830	4,958
100 HP & over	1,441	1,825	1,919
Combines, S-P	1,197	1,492	1,726
Combines, P-T	261	600	495
Swathers, S-P	1,121	991	1,060
Swathers, P-T	1,157	1,380	1,400
Round Balers	3,637	3,949	4,097
Rect. Balers	1,444	1,413	1,436
Forager Harvesters	573	548	563
Mower-Conditioners	2,967	3,212	3,198

Canadian Manufacturers See Improvement In 1990

Canadian farm equipment manufacturers anticipate general improvement in unit sales for 1990. Sales in most major categories picked up substantially in 1989, according to a report issued by the Canadian Farm & Industrial Equipment Institute.

The Canadian forecasters anticipate modest sales increases for moldboard plows, chisel plows, disk harrows, grain drills and unit planters. Manure spreaders are expected to increase substantially.

Sales through October. CFIEI's monthly retail sales report for October showed sales of tractors over 100 hp up by 35 percent for the first 10 months to 2,483 units, but other tractor categories were down. Tractors of from 40 to 99 hp were off 17 percent at 6,446 units, largely attributed to dairymen's concerns about milk prices in 1990.

Combine sales were up substantially. Pull-type units rose 172 percent to 605 for the year; self-propelled models were up 41 percent to 1,394.

Round balers: up 9 percent to 3,629 units; rectangulars: down 3 percent to 1,305. Self-propelled swathers: down 17 percent to 873; pull-types, up 21 percent to 1,353. Mower-conditioners: up 7 percent to 2,935 units.

MF to Sell Majority Share of Landini

Massey-Ferguson Group will sell a majority of its total ownership of Landini Div., its tractor-making subsidiary at Fabbrico, Italy. The new company will be Massey-Ferguson Commerciale SpA with majority ownership held by Euro-Belge SA of Luxembourg. Sale price and the percentage of MF's minority holding

were not disclosed.

Landini has sales of about \$75 million annually. It makes wheel and crawler tractors as well as special models for orchards and vineyards under its own name and will continue to supply Massey under the MF label.

NAEDA Forms Dealer Financial Service Firm

The North American Equipment Dealers Assn. is establishing a company to finance farm, industrial and outdoor power equipment retail sales by member dealerships. It will operate in the U.S. and Canada.

Called NAEDA Financial Services, Inc., it will operate as a cooperative. Shareholders will include NAEDA Services, Inc., North American Benefit Administrators, Inc., and NAEDA's 31 North American affiliated associations. In addition, dealer users will be required to purchase qualifying interests. The new firm will enter into a joint venture

with Valmont Financial Corp. to deliver the finance program to dealers' customers.

BRIEFLY...

Simplicity Mfg., Inc., Port Washington, Wis., has purchased Middlesworth Engineering & Mfg., Inc., Greentown, Ind. Middlesworth produced a line of commercial grass cutting machines and had sales last year of about \$500,000. Tom Middlesworth, founder of the acquired company, will join Simplicity in a senior engineering position.

November U.S. Retail Sales: Surge in Big Tractors

U.S. retail sales in November were up in all categories except tractors under 40 hp and mower conditioners. Big surges were noted in the high-horsepower tractor brackets and in combines. According to the Equipment Manufacturers Institute flash report, total tractor volume is almost dead even with the 1988 level. Combines and other hay tools are substantially ahead for the year.

Equipment	UNIT RETAIL SALES					
	November			January-November		
	1989	1988	% Change	1989	1988	% Change
Farm Wheel Tractors:						
2-Wheel Drive						
Under 40 HP	2,484	2,771	(10.4)	44,534	51,477	(13.5)
40 & Under 100 HP	2,373	2,333	1.7	32,285	30,705	5.1
100 & Under 140 HP	358	248	44.4	4,604	3,855	19.4
140 HP & Over	1,358	852	59.4	13,538	10,470	29.3
Total 2-Wheel Drive	6,573	6,204	5.9	94,961	96,507	(1.6)
4-Wheel Drive						
Under 200 HP	95	94	1.1	1,084	875	23.9
200 HP & Over	300	141	112.8	2,682	1,560	71.9
Total 4-Wheel Drive	395	235	68.1	3,766	2,435	54.7
Total Farm Wheel Tractors	6,968	6,439	8.2	98,727	98,942	(.2)
Combines	965	609	58.5	8,098	5,106	58.6
(Self-Propelled)						
Rectangular Balers	237	225	5.3	6,930	5,581	24.2
(Bales under 200 lbs.)						
Forage Harvesters	167	158	5.7	2,685	2,335	15.0
(Shear Bar Type)						
Mower Conditioners	368	444	(17.1)	12,812	10,642	20.4

Fiat Forms Hesston Credit Corporation

Fiat has formed Hesston Credit Corp., an independent subsidiary to provide Hesston dealers and their customers a full range of equity and standard finance programs as well as lease arrangements on Hesston

equipment. The operation is based at Hesston's headquarters, 245 E. North Ave., Carol Stream, Ill.

Larry G. Landis has been named general manager and chief operating officer.

EMI to Fund Study On Small Unit ROPS

The Equipment Manufacturers Institute has contracted with Triodyne, Inc., Niles, Ill., a mechanical engineering consulting firm, to study the feasibility of redefining the operator clearance zone for rollover protective structures on small tractors.

Almost all big farm tractors used in open fields have ROPS, offered as an option for over 20 years and provided as standard equipment since 1985. However, small tractors often are used in low overhead clearance situations such as yardwork, orchards, vineyards, and in and around farm buildings. Such low-clearance situations, says EMI, are prominent reasons for tractor owners and users to reject or remove ROPS from tractors.

ROPS have helped reduce injuries and deaths resulting from rollovers, present industry standards for them apply only to tractors over 20 hp. Triodyne is to conduct a study of present literature regarding the setting of minimum protective clearances and determine if there is sufficient safety data to set a new clearance zone or zones for ROPS on small tractors.

The EMI Safety Advisory Committee, which authorized the research, says it hopes a proposal for a new ROPS standard can be promulgated which will lead to basic protection for small tractor operators while providing convenience in low clearance situations.

EMI also reported that it is prepar-

ing to sign research contracts to produce information relative to alternatives for field equipment lighting, marking and turn signals, as well as seeking new ways to predict safety-related behavior and determining the most effective means of reinforcing or modifying such behavior.

Dr. Dale Baker (J I Case Co.), chairman of EMI's Ag Safety Research Committee, said Case is funding an extensive literature search program to assemble all literature available on safety-related operator behavior. When completed, the information will be made available to all EMI member companies and the safety community.

Marshall Tractors Quits Production

Marshall Tractors, a part of Britain's Bentall Group, has quit production of the Marshall line of wheel tractors, bringing to an end the line known variously as Nuffield, Leyland and then Marshall. But the Marshall brand name will continue as the Scunthorpe, England, operation will market the Austrian Steyr tractor line under its own logo.

In the 1960s and 1970s, several thousand Nuffield and Leyland tractors were sold in the U.S., mostly in eastern and southeastern states. At one time, Long Mfg. N.C. marketed Leyland tractors under the Long trade name.

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USED EQUIPMENT MARKET

A midwinter look by I&T at the used equipment market starts on Page 22. The very cleanest machines are holding their value very well, but anything less tends to take a beating on the auction block. Some observers think a lot of dealers have been trading too high for used goods and will suffer for it later. Their views are supported by a look at dealers' used equipment margin averages.

Equipment Marketers See Increases in 1990

By BILL FOGARTY

MARKETERS met in San Diego last month to forecast 1990 and for the first time in many years, nobody was anticipating an overall retail sales decline.

The Equipment Manufacturers Institute gathered predictions from 30 field equipment and 23 farmstead equipment firms—and none of them expected the industry's across-the-board retail dollar volume to be less this year than last year.

Of the 30 field equipment makers, 26 saw retail volume going up a range of 3.5 to 16 percent and the other four saw no change from 1989. The median: an increase of 7 percent.

Of the 23 farmstead equipment firms, only one expects no change from 1989. The others predicted increases of 3 to 10 percent. The median: an increase of 5 percent.

Unit sales forecasts:

Tractors under 40 hp: No change from 1989's 46,728 units, either in 1990 or 1991. The range among nine participants was from up 4 percent to down 9 percent in 1990; up 5 percent to down 5.5 percent in 1991.

Tractors from 40 to 99 hp: Up a median 5 percent from 1989's 34,918 in 1990 to 36,664 units; up another 2 percent in 1991. The range of 1990 estimates was from up 6 percent to no change; the 1991 range: up 9 percent to down 2 percent.

Tractors of 100 hp and over: Up a median 8 percent to 22,235 units in 1990. The range of estimates was from up 11.8 percent to up 3 percent (See MARKETERS, pg. 2)

NAEDA Financial Post To Templeton

L.W. "Bill" Templeton is new president and CEO of NAEDA Financial Services, Inc., the cooperative retail financing corporation formed in October by the North American Equipment Dealers Assn.

Templeton most recently was a senior vice president for Deutz-Allis Corp. and earlier had been sales vice president for Kubota Tractor Corp. Before that, he served in marketing functions 25 years for Ford Tractor Co. and one of its distributors. He was president of the FIEI Farm Equipment Div. in 1989.

The new corporation is entering into a limited partnership agreement with Valmont Financial Corp., Omaha, Neb., to form NAEDA Finance Ltd.

Valmont and its parent, Chancellor Corp., have a background in retail financing, leasing and insurance in agriculture and capital goods markets. Valmont will administer the finance portfolio for the (See TEMPLETON, pg. 2)

NAEDA Finance Co.: Will It Fly?

By BILL FOGARTY

YEAR IN, year out, how profitable is this business for dealers?

Answer: Not very. By general yardsticks of return on investment, dealer profitability over the decades has not been up to the levels of per-

formance of many other fields. I may get a little tiresome

EDITOR'S NOTEBOOK

sometimes, thumping on data from the Cost of Doing Business studies by NAEDA, the dealer group. But

that's where one can get some perspective on what's happened in this game. Look:

Return on investment—net profit as a percent of net worth—has averaged 15.7 percent for agricultural dealers over the past 25 years. For industrial dealers, it has been 21.9 (See DEALERS, pg. 6)

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LETTERS

'I Agree With Almost Everything You Say...'

(Editor's preface: This writer asked not to be identified. He was given an early look at Editor's Notebook for January, which prompted this commentary.)

To the editor:

1. I agree with almost everything you say.

2. I would have added Hesston/Fiat (to your list of tractor majors). More comment on market share changes would have been instructive.

3. You comment that dealers don't "belong" to the majors, but you refer to them twice as "major's dealers" instead of dealers.

4. I don't believe that the majors have been "very careful not to violate any state or federal laws concerning restraint of trade." I think they violate them with impunity because there is no one able to challenge them.

5. I think you give too much credit to the majors by saying they're "beginning to think like shortliners." The majors practically never have developed products that are not self-propelled. They almost always obtain these products, still, by:

A. Buying a shortliner (Ford/New Holland and Versatile; Hesston/Fiat;

Case/Hesston hay products).

B. OEMing a shortliner product.

C. Copying a shortliner product when an acceptable demand has been built (sometimes with self-propelled products; examples: Melroe Bobcat, Steiger and Versatile four-wheelers, copied before they were purchased).

6. I think you missed the most important reason that the end-user buys the shortliner product—*quality and value*. It is rare that a major has the better quality implement than some, most or perhaps all of the shortline competitors—unless, of course, a shortliner made it for him.

7. If a shortline dealer network should sprout up, I don't think it would resemble the profile of a dealership as we know it today.

A. I don't think it would have much inventory. The turn would be paramount. Deliver to order—early, so the trade-in could be sold before the season began.

B. I don't think it would have a repair shop. Most shortline products do not need the sophistication of repair that tractors and combines do. Perhaps a repair person in a service truck. Most farmers can repair shortline equipment themselves.

Perhaps it could be an extension of a NAPA dealership. It would concentrate on demonstration and customer service.

8. I would offer an alternative to the shortline dealers or "alliances" that you propose: That the majors "get religion" and look beyond their arrogance to see that capitalism can really work, if they would let it, to wit:

A. Controlling or attempting to control a market (a dealer's market) always results in a smaller market.

B. The farmer is not the major's customer. The dealer is.

C. The secret to success for the major is a strong dealer. All the data I've seen say that a single-line dealer does not maximize profits.

D. In a shrinking market, the battle is to expand the customer base of the dealer. Shortlines will bring in customers who are also customers of another major-line dealer. Now you have a new tractor or combine prospect.

E. Selling retail finance contracts and insurance can be just as profitable with competitive equipment as with your own.

F. Competition is the life blood of an economy, even a small one. If a major's product and value is so good, why would he be so afraid of putting it side-by-side for comparison? Doesn't this help force product improvement?

G. If they want company stores, and if they're such a good deal, why don't they go in that direction? To



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INDUSTRY UPDATE

ASAE: Action Needed Fast on Standards

Members of the American Society of Agricultural Engineers are stressing the need to step up efforts to internationalize its standards. The development of a single European market by the end of 1992 (EC-92) is cited as the reason.

Engineers met with Russell Bodoff of the American National Standards Institute recently and agreed to broaden internationalization efforts by:

- Forming a task group within the Cooperative Standards Program (to press ahead with efforts to internationalize North American standards.

- Designing an international standards matrix to show the relationship among ASAE, ANSI and the International Organization for Stan-

dardization.

- Convening the task group at each of ASAE's international meetings through 1992, to update CSP constituent companies about its progress in harmonizing ASAE and international standards.

Robert C. Lanphier III (Dickeyjohn), ASAE president-elect, asked the group: "Do you believe you are going to be involved with selling any product anywhere outside of North America 10 years from today? It's time we think of the world as our supplier and our market. ASAE must help companies compete successfully in the European Community. The matrix and the task group activities will help achieve that goal." □

Landini Sets Up In Ft. Lauderdale

Landini Trattori, the Italian tractor-maker with a recently changed ownership, is basing its North American sales operation at Ft. Lauderdale, Fla., using offices of Massey-Ferguson Export Operations. John Strudwick is sales administrator and Ray T. Doure is general sales manager.

Landini, founded in Italy in 1884 and a tractor producer for over 60 years, had been a subsidiary company of Massey-Ferguson Ltd. from 1960 until 1989. MF then sold the majority of its shares to EuroBelge, a Luxemburg-based holding company,

and kept a minority interest.

Landini supplies MF with components and tractors which are marketed under the MF brand. Early in the 1980s, MF, Inc., began bringing Landini tractors into North America under the Italian label, marketing them to MF dealers on a cash basis with a sales organization based at MF's Columbus, Ohio, branch.

Currently, in addition to using the facilities of MF Export Operations, Inc., in Ft. Lauderdale, Landini uses the MF North American parts distribution system. □

CONSTRUCTION EQUIPMENT

Manufacturers: 'Little or No Growth'

Construction machinery manufacturers expect overall 1990 business to show little or no growth in all markets, following anticipated gains in year-end 1989 shipments, according to a forecast by the Construction Industry Manufacturers Assn.

Manufacturers predict that for 1990 the U.S. market will increase by less than half a percent, the Canadian market will drop 1.1 percent and sales to other world markets will rise 3.1 percent.

Estimated year-end business volume gains in 1989 were 1.9 percent for the United States, 6.3 percent for Canada and 11.3 percent to world markets.

For 1990, sales are expected to be strongest for cranes and excavators, a 7.7-percent rise in the United States, 3.6-percent in Canada and 11.7-percent for other world markets. Earthmoving equipment sales are expected to decline by 3.5 percent in the U.S., 4.8 percent in Canada and 1.7 percent elsewhere. □

Distributors: Sales Pickup Expected

The average U.S. construction equipment distributor expects a 4.7-percent gross sales pickup in 1990, according to a survey by Associated Equipment Distributors. Last year, the AED survey predicted a 3.6-percent sales increase for 1989, which is estimated to have been exceeded by actual results.

Rentals are the leading area of business growth, followed by new equipment sales, used equipment, parts and service. Light equipment distributors, which carry a variety of smaller product lines, are most optimistic, seeing a 7.8-percent sales gain for 1990. Heavy earthmoving equipment distributors and engine dealers anticipate a 3.9-percent increase; general line businesses expect a 4.5-percent hike in 1990 sales. □

1989 Retail Sales End Strong for Most Groups

Farm equipment retail sales in the United States finished 1989 well ahead of 1988 in most product areas reported in the flash report of the Equipment Manufacturers Institute. Only tractors under 40 hp showed a decline. The biggest gainers were the high-dollar items, large tractors, and self-propelled combines.

Equipment	December			January-December		
	1989	1988	% Change	1989	1988	% Change
Farm Wheel Tractors:						
2-Wheel Drive						
Under 40 HP	2,203	3,264	(32.5)	46,728	54,741	(14.6)
40 & Under 100 HP	2,640	2,455	7.5	54,916	33,169	5.3
100 & Under 140 HP	615	465	32.3	5,219	4,320	20.8
140 HP & Over	1,634	1,332	22.7	15,369	11,802	30.2
Total 2-Wheel Drive	7,092	7,516	(5.6)	122,232	104,032	(17.5)
4-Wheel Drive						
Under 200 HP	70	123	(43.1)	1,135	998	12.8
200 HP & Over	316	171	84.8	3,026	1,731	74.8
Total 4-Wheel Drive	386	294	31.3	4,161	2,729	52.1
Total Farm Wheel Tractors	7,478	7,810	(4.3)	126,393	106,761	(18.4)
Combines	1,013	505	100.6	9,111	5,945	53.0
(Self-Propelled)						
Rectangular Balers	203	154	32.5	7,123	3,325	114.2
(Bales under 200 lbs.)						
Forage Harvesters	118	70	68.6	2,883	2,405	20.1
(Shear Bar Type)						
Mower Conditioners	340	401	(15.2)	11,103	11,043	0.5

OPEI: Shipments Decline in 1989

The Outdoor Power Equipment Institute, made up of lawn and garden equipment makers, has reported that shipments from members to wholesalers and dealers declined in most product areas. Only rotary tillers showed an increase.

Walk-behind power mowers: 5.6 million units in 1988, 5.3 million in 1989.

Front-engine lawn tractors/riding mowers: 812,000 in 1988, 793,000 in 1989.

Rear-engine lawn tractors/riding mowers: 375,000 in 1988, 260,000 in 1989.

Riding garden tractors: 170,000 in 1988, 139,000 in 1989.

Rotary tillers: 285,000 in 1988, 305,000 in 1989.

Said OPEI: "The overall decrease in manufacturers' shipments is attributed to the carryover retail inventory caused by the drought of the 1988 season." □

Canadian Sales, '89: Big Units Did Well

Retail sales in Canada wound up 1989 with a 5.8 percent decline in tractor unit volume, but two-wheelers over 100 hp were up 27 percent at 2,953 and four-wheelers rose 9 percent to 1,454. Total tractor volume finished at 16,228 units, compared with 17,221 a year earlier.

Self-propelled combines were up 37 percent at 1,637; pull-type units went up 142 percent to 631.

Rectangular balers fell 3 percent to 1,400, but round balers went up 5 percent to 3,819 units.

Self-propelled swathers declined by 14 percent to 960 units sold; pull-type swathers rose 16 percent to 1,420.

Forage harvester sales were off 8 percent at 528 units; mower-conditioners were up 4 percent at 3,079. □

Britain's Tractor Sales Down in 1989

Total tractor registrations in the United Kingdom were down 11 percent to 19,948 units in 1989, compared with 22,521 in 1988. The total horsepower of tractors registered in 1989 was 1.7 million, a decline of 10 percent in 1988 levels. The average horsepower per unit, however, was up by 2 percent to 85.

Registrations were in line with expectations based on farm income

levels and were close to what is considered a normal annual level of demand for the U.K. market, according to C.J. Evans, economist for the Agricultural Engineers Assn., a manufacturers group.

Sales in 1990, said Evans, are not expected to exceed those of 1989 and may decline slightly if interest rates stay higher than they were in 1989. □

USED EQUIPMENT PROFITABILITY: Good Riddance To A Blue Decade

Year	Used Equip. Sales	Gross Margins on UE Sales		Used Equip. Inventory	Turn-over	Dealership Net Worth	UE Inventory as Percent of NW
		Dollars	Percent				
1979	\$454,442	\$32,324	7.11	\$136,443	3.09	\$324,435	42
1980	399,201	28,163	7.05	148,047	2.51	337,179	44
1981	477,616	31,898	6.68	152,842	2.38	362,049	53
1982	441,431	18,382	4.16	209,908	2.02	377,117	56
1983	479,426	19,816	4.13	224,419	2.05	364,263	62
1984	511,480	19,618	3.84	263,602	1.86	428,654	61
1985	452,965	12,929	2.85	227,959	1.93	441,034	52
1986	464,804	17,954	3.86	216,527	2.06	410,546	53
1987	491,255	33,920	6.90	202,629	2.26	427,538	47
1988	572,802	39,612	6.92	199,494	2.67	463,953	43

SOURCE: North American Equipment Dealers Assn. Cost of Doing Business Studies, 1979-1988.

NOTE: Going further back with NAEDA used equipment sales data, in 1978, North American agricultural dealers averaged margins of 7.4 percent, turnover of 2.85 times; in 1977, 8.2 percent, 2.61 turnover; 1976, 7.9 percent, 3.33 turns; 1975, 8.8 percent, 3.99 turns; 1974, 10.9 percent, 4.92 turns; 1973, 15.4 percent, 3.11 turns.

RESOLVED FOR THE 1990S:

Better Margins On Used Stuff

By BILL FOGARTY

IN SOME respects, we're back where we started, and that's not all bad.

Look at the table that comes with this article. It's a 10-year tale of fair to terrible. It reports average dealer performance through the 1980s in the used equipment department. Like a lot of collections of data, it tells a lot and conceals a lot about what happened.

The good news is that dealer margins have moved back up almost to where they were 10 years earlier. Turnover hasn't made that good a comeback, but it's improving from its under-two levels of the mid-1980s.

The bad news is that dealers in general are clearly not in control of the situation. Margins are simply too low on used equipment.

Agreed: Gross margin averages are too low in other operations, too. Parts gross margins are shrinking. Service margins have never been enough to make the NAEDA Cost of Doing Business averages for that department profitable. And dealers have been very sensitive in recent years to downward pressures on new equipment sales margins.

But the special thing about used equipment and what it involves is particularly ironic. Dealers will admit that they don't know why the shop loses money. They blame others for the parts-earnings demise. Major manufacturers are held ultimately responsible for the shallow margins on new stuff because of their policies. And so it goes.

But whatever other weaknesses they may have, many of these same dealers regard themselves as pretty good traders. The real fun of the business is to hunker down and bargain with that farmer, get him to

agree to a price on a new machine and an allowance on his used machine.

Apparently, however, the farmer is having even more fun than the dealer, to judge from the NAEDA numbers.

How good are those NAEDA numbers? Of course, they can be no

personnel, a look at where the industry has been and how it got that way. The other is to suggest some fresh ways a dealer might think about his own used equipment situation.

In the opinion of some observers, including the writer, dealers often get in trouble with used equipment

(FIEI).

It shouldn't have been too much harder to get an idea of what was happening with late model used machines. A few trips to farm sales and regularly scheduled auctions could establish a lot about current values. Efforts at reselling repossessed units might have told even more.

Con Clement, a veteran used equipment operator based at Grand Meadow, Minn., told *I&T* in those days that for every dollar the manufacturer discounted the price of a new machine, the value of the same model used went down two dollars. The writer has put this rule of thumb to other veteran watchers of the used equipment market and found them in agreement.

Another reason used equipment has traditionally led so many dealers into bad financial positions is this: If you deal in much high-ticket stuff at all, you have to do your homework to keep up with changing values. It's a never-ending requirement for profitable operation. If the dealer doesn't do the keeping up, somebody else in the organization has to. Or contacts with people who do know must be maintained.

Ed Walsh, the veteran consultant for dealers, himself a former dealership manager, believes that dealers should get as much margin from used equipment sales as from new. We asked Walsh recently if that was because used is generally more risky and troublesome to work with than new.

"That's part of it," he replied. "It's mostly because it's possible to make more margin from used than new if it's managed right."

Back to the NAEDA averages: That's only happened once in the past two decades—that wild and crazy year of 1973 when everyone



WALTERMAN: "It's getting hard to find good, clean combines now, and it's going to be tight going into 1990."

better than the data provided from the participating dealers. What's worrisome is that through the history of this business, many dealers have put themselves into serious trouble by overvaluing the used equipment on their lots.

Seeing the market

We're trying to do two things in this article. One is to give readers, particularly dealers and their sales

by basing trade-in values on what was real in the recent past—but which might have changed radically in a short time.

Example: In the mid-1980s, sales of big tractors and combines fell off precipitously. Manufacturers' inventories built up quickly. It was possible to track the buildup by reviewing publicly available industry retail sales data from the Equipment Manufacturers Institute (then the

was clamoring to get into farming and anyone could make money growing anything. Dealers got an 11.5 percent margin for new, 15.4 percent for used. In the most difficult times, new margins have run more than double the used level, but in 1987 and 1988, there was a movement toward balance.

"For years," said Walsh, "I've been telling clients that they have to cut out the self-deception they go through at trading time, only to have to write the value of the inventory down 18 months or so later. They'll respond, 'My salesman aren't going to like it.' I tell them that they can't have a bunch of make-believe artists overvaluing like that."

Walsh added: "There are a lot of ways to move used equipment that are not well understood by many dealers. Sometimes when I was a dealer, we wouldn't buy a farmer's tractor on the deal. We'd tell him we'd put it on our lot at the price he set, take 15 percent of whatever it would bring, and we'd warrant it. We'd take this approach when we and the farmer couldn't agree on the machine's value."

How about a dealer offering to truck the farmer's used machine to auction for him and taking a small fee for the transport and related cost?

"That might be a good approach. The dealer doesn't have to tie up capital that way. But a lot of dealers

will tell you, 'Oh, we couldn't do that!' There are also dealers who never think about turning used inventory into a rental fleet, but others have made this a good source of income."

Dealer views

Jack Churchwell of Bacon Equipment, Mer Rouge, La., agrees that it's hard for dealers to stay on top of the actual prices the market is setting on used equipment.

"A lot of dealers only look at that top figure, what they sell the new one for. Others only look at the value of the trade-in. The only figure that makes any difference is what's left over when you've sold them

both. A lot of younger dealers want to make that deal, and they pay a little too much for the trade—then they start worrying.

"I depend on my contacts with older hands in the business. I like to call up a lot of veteran dealers I know, outside my trade territory, and get a line on values. We keep each other informed. It makes a difference."

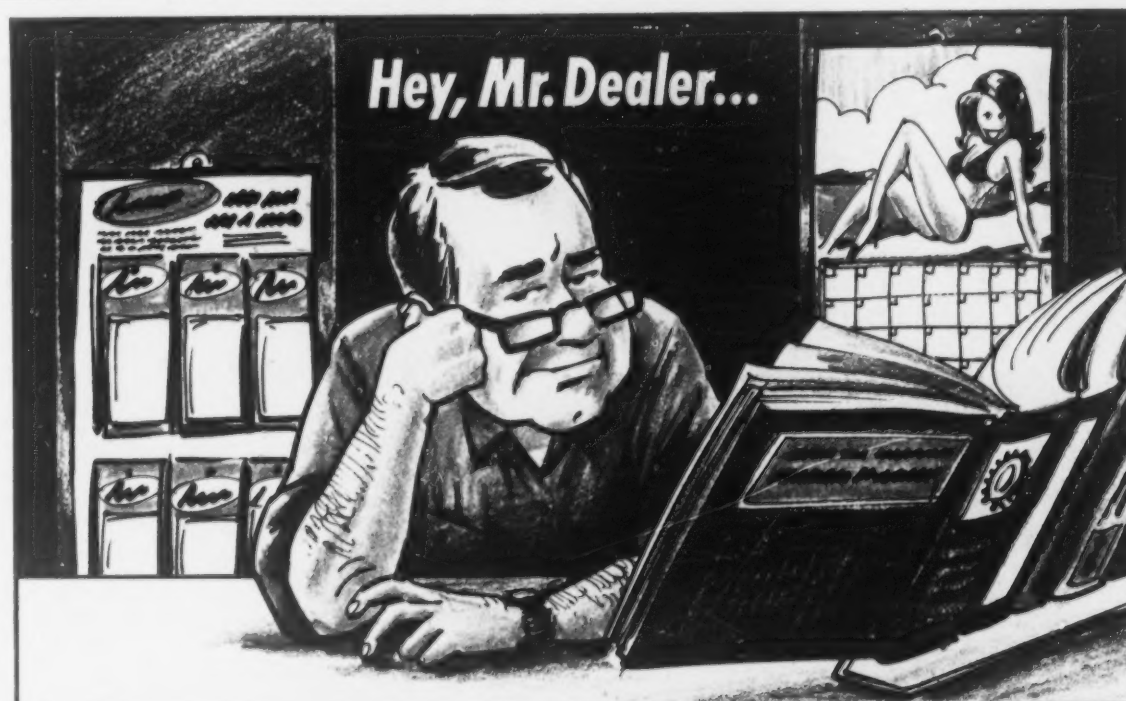
Dick Kunau, Kunau Implement, Preston, Iowa, has found that it's possible and desirable to sell combines in December, if they're clean and otherwise quality stuff.

"I sold a Case IH 1460 in December, a week after I'd taken it in on trade. It was still in the former

owner's shed. This isn't so unusual anymore. Farmers like to shop this way. They have more time and there is more selection. They know what they want, and you can help them find just what they need.

"Typically, the in-season sale of a used combine is more likely to come when a farmer has a breakdown. The off-season sale, on the other hand, gives the farmer more selection and time to check the machine out to put any parts on he thinks are needed."

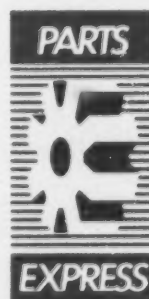
On that last sale—the combine still in the ex-owner's shed—Dick made a deal on parts. Anything needed for reconditioning would be sold to the buyer at a discount, and Kunau



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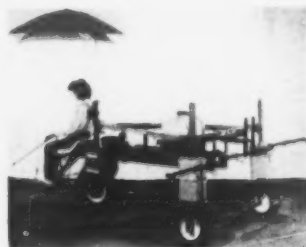
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would send for the required parts as part of a stock order, helping to keep margins intact.

"It's easier to sustain margins on used combines than on used tractors," Kunau observed. "We've probably done more buying of used equipment for customers than we have acquired through trading in the past four or five years. We've found that when you go out looking for a quality tractor, the competition is quite fierce and margins tight."

Warren Deters, Deters Implement, Eitzen, Minn., has been increasing his efforts at acquiring and retailing used equipment.

"We buy a fair amount of used items we can resell," he said. "Prices have been creeping up, and we like it. This part of southeast Minnesota is like typical Wisconsin dairy country, and about anything between 50 and 100 horsepower that is clean is good. We're a Deutz-Allis dealership and we prefer working

with Allis-Chalmers units. In any case, we only buy top-quality merchandise."

This dealership may take in a poor machine on trade and in some instances fix it up. "We have a varied clientele," noted Deters. "Some customers will want to buy such items. But we don't buy equipment just to keep the service department busy. They are usually busy on their own, and what used equipment reconditioning is needed will be fitted in with the rest of the work."

Bob Ellefson, Ellefson Implement, Mitchell, S.D., thinks there is still too much inventory at the dealer level, both new and used.

"Interest rates are high, and dealers need to cut both new and used inventory levels to reduce inventory expense, and it's hard when the interest rate on used is 14.5 percent. The implement business is very capital-intense, and the only way to change that is to lower inventory. We'd like some of that just-in-time that the manufacturers are so fond of, but we don't get it in parts or wholegoods."

Ellefson feels that there is too much difference between prevailing interest rates on new and on used equipment. "When you get done with the special deals on new equipment financing," he said, "it's about half of the interest rate on used. If you were to devise a system to attack and hurt the dealer, you couldn't find a better one. It's what's destroying the margins, and it will force some dealers out."

Leon Waltermann, Waltermann Implement, Dike, Iowa, is happy with the way used equipment sales are going for his dealership. But he thinks some dealers have been trading too high and are headed for trouble.

"It's been excellent, especially with MF 850 and 860 combines of good quality. But the run-of-the-mill stuff tends to lose its value quickly. The combine that's worth \$25,000 today will soon be worth \$15,000, but the \$50,000 unit can hold its value."

Waltermann spoke of the dealer's need to know the "right price" for a specific machine. It involves knowing its condition but also the dealer's own customer base and what it needs and wants now.

"Farmers are willing to spend \$20,000 more for that excellent combine or tractor than the average stuff because they know its value will hold. Farmers who have survived the 1980s are so much more value-oriented than they used to be."

Waltermann reflected: "Farmers don't buy equipment to fix it up much anymore. For a lot of them, maintenance means fix-it-when-it's-broken. The maintenance programs on so many farms are pathetic. They just want the machines to work, and that's it."

For 1990, he sees used equipment sales holding up, "providing none of the manufacturers starts discounting the new equipment." It's hard to get good used combines now, and supplies will be tight moving closer to season of use.

"Some dealers," remarked Waltermann, "will find out in 1990 that

they were trading too high in 1989. In this business, it can take a year to find out you're broke. Too many dealers don't make the effort to find out what the right price is."

Auction specialists

For this story, *I&T* talked with three used equipment auction companies who, between them, probably sell about 10,000 tractors a year just at their own operations. In addition, there are countless farm sales, dealer closeouts and other situations that make machinery available, as well as one-on-one retail sales daily. They see what happens to a lot of machinery when it faces the test of supply and demand.

One thing all three emphasized: If it isn't high quality, the seller will likely be disappointed with what he gets.

Larry Allen, Carson Machinery Auction, Carson, Iowa, put it this way: "The quality still sells. Anything less than that declines fast. I'm not just talking about the junk, either."

"On a one-to-10 scale, while the nines and 10s hold value and bring good prices, the sevens lose value pretty fast. So for 1990, you can expect a lot of demand and high dollar for the top units. Machinery below that will bring much less."

At Charlotte, N.C., Frankie Godley of Godley Auction Co. comments: "In recent months, demand for late model stuff is good, but not extraordinary. People want machines in good condition as well as current. As you get away from that, prices are pretty soft."

And Bob McWhirter, McWhirter Equipment, Baxter, Iowa, confirms: "There's good demand for late, clean equipment—which is scarce. The other stuff falls off pretty fast. You see a lot of tractors that farmers were farming with for three or four more years than they had intended. They have been patched and re-patched. There is a lot of rough equipment like that around, and it doesn't bring much."

Indications are that a lot of farmers understand the used equipment market better than the general run of dealers. "Farmers follow farm sale prices in their neighborhoods," said Godley, "and they're a lot more aware of what goes on at auctions, too."

Not many of them buy with the idea of reconditioning. "The technology involved in these tractors," said McWhirter, "is beyond most farmers. Since they can't do it themselves anymore, they have to have equipment that is ready to go."

Allen agreed. "Farmers don't want the expense of rebuilding a high-hour tractor. They know they can't make it with weak stuff. That's why they zero in on the quality equipment."

Dealers are pretty much in the middle when it comes to shifts in used equipment supply and demand. That's why they need to be sensitive to the changes that can take place in the market continuously, he noted.

"Whenever a dealer sets out to dictate how the market is going to (See MARGINS, pg. 28)



McWHIRTER: "We encourage dealers to come to auctions. It's a way of going to school."



ALLEN: "Whenever a dealer sets out to dictate how the market is going to be, get ready for a train wreck."

EMI-CIMA

(From pg. 21)

because of the turn of events, "the only alternative is now to go about the process of inviting a broad group of construction equipment manufacturers to affiliate with EMI and go forth with a positive program for all the industries and member interests we seek to serve."

EMI also announced that Jeanine Conwell, formerly director of statistical programs for CIMA, had become EMI's director of statistics, and that Komatsu/Dresser will be reporting its data only in the new EMI construction equipment statistics program. □

PALMQUIST

(From pg. 14)

can set a dealership off from mass merchandisers and other marketers of similar product lines.

Larry Palmquist's experience to date shows that it's possible to do these things and still grow the business toward its ultimate potential. Whether or not Stanley Equipment makes it all the way to \$7 million as an outdoor power dealership, Larry will have had a lot of enjoyment moving in that direction and making a profit along the way. □

OPE MARKET

(From pg. 15)

next year or so in the American marketplace, it will help put the priorities in the right order. Otherwise, be prepared (for manufacturers who will provide) inappropriate product literature, inappropriate packaging and products that may or may not withstand the rigors of the consumer-testing organizations. □

EUROPEAN

(From pg. 17)

Canada, where the Nuffield brand name is still used by Marshall.

Steyr builds 10,000 tractors per year, but already has close links with other European companies. Transmission components from the Steyr factory are sold to Deutz-Fahr in Germany and to Valmet in Finland, and Steyr and Valmet are also collaborating over an engine development program.

Valmet is involved in another deal announced at Smithfield, which puts Massey-Ferguson transmissions into Valmet tractors of 150 hp and above. Valmet already supplies 180-hp engines for the MF tractor plant in France. □

BRIEFLY....

The Forging Industry Assn. has awarded a \$1,500 prize to Dan Deering, Deere Harvester Works, Moline, Ill., for his design of a series of hydraulic cylinder caps. A 65-percent cost reduction resulted primarily from less machining, drilling and other processing with the design, according to FIA.

MARGINS

(From pg. 24)

be, get ready for a train wreck," commented Allen. "Sometimes a dealer will point to a tractor he has and says, 'I need \$30,000 for it,' but if I offer to give him another one just like it for \$20,000, and he's not interested, that means he gave too much for what he has."

After two mid-December sales, Allen told *IST* that demand was excellent. "I'd say the market is running equal to or stronger than a year ago. But I'm not sure that it has exceeded dealer expectations. I see a pipeline full of tractors, acquired by dealers at a relatively high dealer

figure. I see quite a gap between what they're asking and what they're getting."

"The supply got laid in there pretty high. The question is, how much demand will be there to support it?"

Said McWhirter: "A lot of dealers don't check around with used equipment wholesalers to see what market values really are. If a dealer wants to make money with used equipment, he has to be out there hustling, keeping up with the changes in supply and demand."

"We encourage dealers to come to an auction. It's a way of going to school. He can find out what the real market is doing and he can also get acquainted with a lot of pros in the

business.

"You know, most of the trading in this business is done on the basis of a man's word about the condition of a machine. Deals on used tractors are cut with the buyer not seeing the machine until it's in his hands. If somebody doesn't tell it straight, or doesn't make it right when he's given out the wrong information, the word gets around about him. I always say, if his word's no good, his business is no good." □

Gerry Hodges has joined Innovative Equipment, Inc., as general/marketing manager. He is developing a marketing system for the Windfoil Turfgrass Sprayers. □

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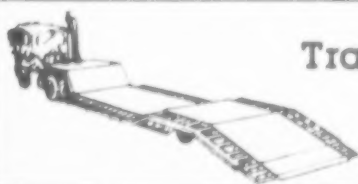
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Abbreviations

DNA - Does not apply

NA - Not available

Std. - Standard

Opt. - Optional

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**Farm Press
Publications**

Nebraska Test Procedures

General

Tractors are tested at the University of Nebraska according to the Agricultural Tractor Test Code approved by the American Society of Agricultural Engineers and the Society of Automotive Engineers or official Nebraska test procedure.

The manufacturer selects the tractor to be tested and certifies that it is a stock model. Each tractor is equipped with the common power consuming accessories such as power steering, power lift pump, generator, etc., if available. Power consuming accessories may be disconnected only when the means for disconnecting can be reached from the operating station. An official representative of the company is present during the test to see that the tractor gives its optimum performance. Additional weight may be added to the tractor as ballast if the manufacturer recommends use of such ballast. The static tire loads and the tire inflation pressures must conform to the specifications of Tire and Rim Association.

Preparation for Test

The engine crankcase is drained and refilled with new oil conforming to specifications in the operator's manual. The operator's manual is also used as the guide for selecting the proper fuel and for routine lubrication and maintenance operations.

The tractor is limbered up for a minimum of three hours on the drawbar. Preliminary adjustments of the tractor is permitted at this time. Any parts added or replaced during the limber-up run, or any subsequent runs, are mentioned in the individual test reports. The tractor is equipped with approximately the amount of added ballast that is to be used during the drawbar runs.

PTO Performance

Power take-off performance runs are made by connecting the power take-off to a dynamometer. During a preliminary power take-off the manufacturer's representative may make adjustment for the fuel, ignition or injection timing and governor control settings. The settings must be maintained for the remainder of the test. The manually operated governor control mechanism is set to provide the high-idle speed specified by the manufacturer. During the power take-off runs an ambient air temperature of approximately 75 degrees F. (24.0 degrees C) is maintained.

Maximum power is obtained at the rated engine speed specified by the manufacturer with the governor control set for maximum power. This same setting is used for all subsequent PTO runs. Time of the run is two hours. Whenever the power take-off speed during the maximum power run differs from the speeds set forth in the ASAE and SAE standards, an additional run is made at either 540 or 1000 rpm of the power take-off shaft. Time of this run is one hour.

Drawbar Performance

Maximum drawbar power is shown for the normal field speed selected by the manufacturer. All engine adjustments are the same as those used in the power take-off runs. If the manufacturer specifies a different rated engine speed for drawbar operations, then the position of the manually operated governor control is changed to provide the high-idle speed specified.

Maximum drawbar power is determined within the following limits: (1) slip of the drivers must not exceed 15 percent for pneumatic tires on the concrete test course or 7 percent for steel cleats on the well packed earthen course; (2) ground speeds must not exceed 10 miles per hour; (3) safe stability limits of the tractor must not be exceeded; (4) no other operating limit of the tractor must be exceeded. Drawbar load is applied until the manufacturer's rated engine speed is obtained with maximum governor control lever setting. Travel speed, drawbar pull and other data are recorded over two 500-foot straight level areas.

Fuel consumption is determined at the manufacturer's selected travel speed with the drawbar pull set: (1) to give rated engine rpm; (2) 75 percent of the pull at rated engine rpm; (3) 50 percent of the pull at rated engine rpm; and (4) maintaining the same load and travel speed as in (3) by shifting to a higher gear and reducing the engine rpm.

This summary shows the drawbar horsepower, corresponding travel speed and fuel consumption at 100 percent, 75 percent, or 50 percent loads, and 50 percent of pull at reduced engine speed.

Also shown is the maximum drawbar horsepower produced for two 500-foot travel sections and corresponding travel speed, the maximum drawbar pull and the corresponding drive-wheel slippage.

In addition, the "lugging ability" obtained by increasing the load so that the full throttle engine speed drops to 80 percent of rated is given as a percent increase with respect to the pull at rated engine rpm.

The maximum drawbar horsepower and the corresponding speed and drawbar pull for other selected gears or travel speeds are shown in the individual test reports.

Sound Measurement

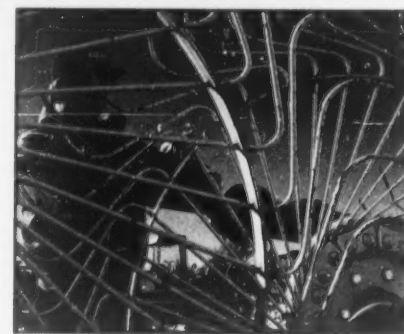
Sound is recorded during each of the Drawbar Performance runs as the tractor travels on a straight section of the test course. The dB(A) sound level is obtained with the microphone located near the right ear of the operator. Bystander sound readings are taken with the microphone placed 25 feet (7.5 meters) from the line of travel of the tractor.

An increase of 10 dB(A) will approximately double the loudness to the human ear.

PRE-SETTING VITAL TO SUCCESSFUL DEMOS

IMPLEMENT & TRACTOR

The Business Magazine of the Agricultural, Industrial & Outdoor Power Equipment Industry



VOLUME 105 No. 4

APRIL 1990



Driveline Group Offers Safety Poster

PTO safety is promoted in this Pogo-like poster developed by the Agricultural Driveline Manufacturers Assn. ADMA members (Bondioli & Pavesi, G&G Mfg. Co., Neapco, Rockwell International, Walterscheid and Weasler Engineering) want to get the poster into dealerships and farm homes. For more information, contact Joel Martin (Walterscheid) at 708-887-7022.

EMI Cuts Back Ag Sales Data, But...

THE EQUIPMENT Manufacturers Institute has a new policy with regard to public disclosure of its retail sales data reporting programs. Starting with the January flash report, the only

numbers to be made available to other than reporting, participating companies will be:

Farm wheel tractors: Two-wheel-drive units of under 40 hp, from 40 (See EMI, pg. 2)

For Agriculture's Future

Opinions Differ, Goals Are Same

STAFF REPORT

THE ROOM was packed with people from the equipment industry, the farm chemical industry and ag schools. You might have expected a donnybrook of insults, sloganeering and cheap shots, but what you got were some thoughtful calls for reasoned change.

The venue was Moline, Ill., where the Equipment Manufacturers Institute was conducting its recent Tillage & Crop Production Equipment Conference. The event drew

about 130 persons, a fourfold increase over similar sessions of just a few years ago. Lamont Webster (Kewanee Farm Equipment Co.) was program chairman.

The two featured speakers of the first general session were Dr. Jack McEwen (United Suppliers) and Robert Rodale (Rodale Press). Moderator was Glenn Olson (Deere & Co.).

Dr. Jack McEwen has a background in academia, agricultural association work and the farm chemical industry, but he insisted he is not (See TWO, pg. 8)

Who's Marketing The Servicing Dealer?

By BILL FOGARTY

WHEN I HEARD Ben Lamp's report on the Ohio State LIDS research to date, I was jarred by some of the findings. (There's a report on that report elsewhere in this issue.)

LIDS is already a widely-known acronym for low inventory distribution system—the business whereby the customer orders through the dealer, then the specified machine is produced and delivered.

As part of finding out how to approach that way of doing business, the Ohio study looked into ways buying decisions are made and shopping is done today.

Perhaps I shouldn't have been jarred. What was happening was that some of my cherished personal beliefs about perceptions of dealers, farmers, products and manufacturers were being challenged.

My doctrine has always been that

COMMENTARY

the dealer is more important than the brand. It's not the paint color that keeps the machine going in a critical planting or harvesting season. It's the technician making the in-field repairs, the partsman having (See WHO'S, pg. 4)

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WHAT THEY'RE SAYING

Better Product Or Better Sales Person?

Peter Veevers is a veteran British sales trainer. Here's part of what he wrote recently for Tractor & Farm Machinery Trader, a British trade publication.

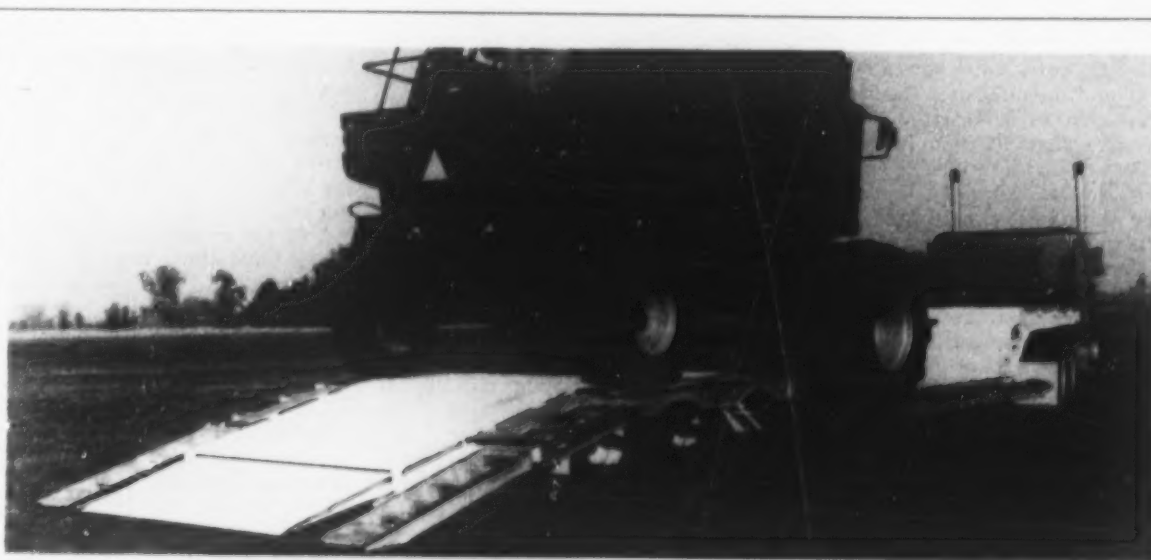
WHENEVER I SEE a top company salesperson selling two or three times the volume of his/her colleagues, I note that it is not what they are selling that makes the difference, as their

colleagues are all selling the same product range.

What does make the difference is the knowledge, the skill and the working practices of those salespersons themselves. They do it better and more often. They prove that in spite of the product, price and company they work for, high levels of sales can be achieved. And in a shrinking market, too.

Why it never dawns upon the manufacturers that it is not their products but their dealers' salespeople who make the difference, I do not know. Well, I think I do know, actually.

It is because manufacturers are so obsessed with whether their product has a few extra horsepower, gears or ballbearings, they forget about, or (See SAYING pg. 7)



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INDUSTRY UPDATE

Distributors Foresee Coming Changes

Associated Equipment Distributors, a group of retailers of construction and industrial equipment, are looking at major changes in their markets as customer needs shift.

AED members deal not only in large earthmoving equipment but such items as hand-held tools, generators and pumps. They heard about the changes from panelists at AED's recent annual meeting in Chicago.

Among the changes in traditional patterns of acquiring equipment that are impacting the industry:

Demand will continue to grow for smaller and medium-sized units because of a different composition of construction activity. Customers will also want equipment to perform multiple functions when possible.

Customers will show less brand loyalty and shop instead for product features, price and after-sale product support.

One-stop convenience for equipment, supplies and services will be in greater demand.

Customers are turning to rent and lease arrangements to acquire specialized machines for unusual applications and short-term assignments.

Panelists included: Brian Thompson, Blackwood Hodge plc, British parent company of a number of distributorships; Bram Bluestein, A.T. Kearney, Inc., consultant; David Reid, Hudson Institute economist; Pat Dolan of Arthur Anderson & Co. accountants; and Frank Manfredi, marketing consultant.

Tractor, Combine Sales Strong Through February

Retail sales of farm tractors and combines in the U.S. were up in all but one category through the first two months of 1990. Sales of tractors under 40 hp, which had been in decline for several years, were running almost dead even with 1989 through Feb. 28.

The data source is the Equipment Manufacturers Institute, which has previously announced that its only publicly released sales figures will be its monthly flash report on tractors and self-propelled combines. The flash report no longer includes data on hay balers, forage harvesters or mower-conditioners. Some tractor and combine inventory data may be included in later reports.

Equipment	February			January-February		
	1990	1989	% Change	1990	1989	% Change
Farm Wheel Tractors:						
2-Wheel Drive						
Under 40 HP	2,174	2,221	(2.1)	4,430	4,451	(.5)
40 & Under 100 HP	2,304	2,146	7.3	4,733	4,325	9.4
100 HP & Over	1,600	1,341	19.3	3,320	3,064	8.1
Total 2-Wheel Drive	6,078	5,708	6.4	12,483	11,839	5.5
Total 4-Wheel Drive	327	389	(13.1)	647	809	(13.7)
Total Farm Wheel Tractors	6,405	6,097	5.0	13,130	12,648	3.8
Combines (Self-Propelled)	481	196	145.4	965	561	71.6

French Tractor Market, Who Has What Share

In 1989, France's state-owned tractor line, Renault Agriculture, took the share lead in the French market away from FiatGeotech, holding its 15.5 percent slice. Total units sold in France in 1989 came to 39,707, compared with 42,492 in 1988.

Here's how the major sellers ranked in new tractor registrations, according to SYGMA, an association of French farm equipment makers:

Company	Unit Sales		Share of Market (%)	
	1989	1988	1989	1988
Renault	6,142	6,601	15.5	15.5
Case IH	5,922	5,866	14.9	13.8
FiatGeotech	5,534	6,936	13.9	16.3
Massey*	5,379	5,231	13.5	12.3
John Deere	4,213	4,138	10.6	9.7
Ford NH	2,688	3,082	6.8	7.3
Deutz	2,044	2,122	5.1	5.0
Same	1,376	1,633	3.5	3.9
Others	6,409	6,384	16.2	15.2
Total	39,707	42,492	100.0	100.0

*Massey-Ferguson includes Landini.

Allied Expects 1989 Loss

Allied Products Corp. has announced it expects to report a loss for 1989 of about \$22 million, of which about \$12 million is of a non-recurring nature. Richard Drexler, president and chief executive officer, said the loss stemmed partly from weakened demand in transportation-related sectors of the business and "a slower than expected improvement in the sales of agricultural equipment."

Allied is the parent company of White-New Idea Farm Equipment Co., Coldwater, Ohio. Farm equipment accounts for approximately half of Allied's sales volume.

Earlier, Allied announced it has restructured its existing bank debt with an 18-month secured credit facility in excess of \$200 million.

MF Opens Regional Centers

Massey-Ferguson, Inc., has established seven regional operations centers across North America. The manager of each center will report directly to David Pitt, president of MF Inc., and will have asset and profit responsibility for operations. These will include marketing and sales planning, wholegoods and parts sales, telemarketing, field ser-

vice, dealer development, product scheduling, pricing, training, promotion, collections, etc.

The regions and their general managers:

Western Canada, Calgary, Alta.; Jerry Knight.

Eastern Canada, Toronto, Ont.; Donald Butler.

(See MF, pg. 20)

BRIEFLY...

Kubota Tractor Co. is offering financing rates beginning at 2.5 percent until June 30, 1990, through Kubota Credit Corp. Buyers of new Kubota tractors and implements can get a two-year contract at 2.5 percent, three years at 5.5 percent, four years at 7.5 percent or five years at 8.5 percent.

Pegoraro-Fort, Inc. has been established at Atlanta, Ga., as a joint subsidiary of two Italian farm equipment makers, Pegoraro of Gambellara and Fort of Luzzara. The Pegoraro line includes powered tillage equipment; Fort produces round balers, drum and disk mowers, tedders and rakes. Guido Gabbriellini is manager.



Case Plans New Racine Facility

With approval from parent company Tenneco's board of directors, Case is starting construction of a new training center and corporate headquarters at Racine.

Completion of the 30,000-sq.-ft. facility is set for 1991 and is the first Case construction in downtown Racine in over 85 years.

Though not yet approved by the board, there are plans for further construction in the area that would give Case 500,000 sq. ft. of new working space surrounded by landscaped plazas and connected by enclosed walkways.

The facilities would house 1,500 Case workers now located around the Racine area.

How Big Is The Industry?

STAFF REPORT

ARMED WITH with the table you see, courtesy of the Dept. of Commerce, we thought we could find an expert to answer our headline question in its broad sense. We couldn't, as it turned out. A lot of people know a lot of separate elements of the industry's business, but apparently nobody has it all.

We wanted to get a fix on how much retail farm equipment business is done in the U.S. That's parts, new wholegoods, etc., at the dealership level. After thinking it over, we realized that these elements are just a part of the business. There's used equipment, also repair services. And there's also the sale of financial services.

Let's look at the 1988 number: \$7.134 billion as a value of shipments. That's an FOB factory figure. Add in the imports and subtract out the exports and you get \$7.43 billion.

At this point, let's turn to the Case of Doing Business study of the North American Equipment Dealers Assn. Their reporting agricultural dealers averaged \$2.72 million in sales. There were 7,975 dealer members in 1988. If you figure that 88 percent of them are

ag dealers (that was the percentage of all reporting dealers that year), that's 7,000. Multiply \$2.72 million times 7,000 and you get \$19.312 billion, and right away we feel we're off somewhere. It seems like too much.

So subtract everything from the total average sales figure except new equipment and repair parts, which is what the Commerce Dept. shipments figure includes. That leaves \$1.53 million times 7,000, or \$12.8 billion. Dealers

paid their suppliers an average \$1.55 million for those new wholegoods and parts, which multiplied by 7,000 ag dealer members is \$10.85 billion.

Our quest for the real number, then, depends on how good a sample the 901 reporting ag dealers are of the estimated 7,000 ag-oriented members NAEMA had in 1988.

So how big is the retail end of this business? If we want to include used equipment and other

related items, maybe that \$19.3 billion figure is only slightly exaggerated.

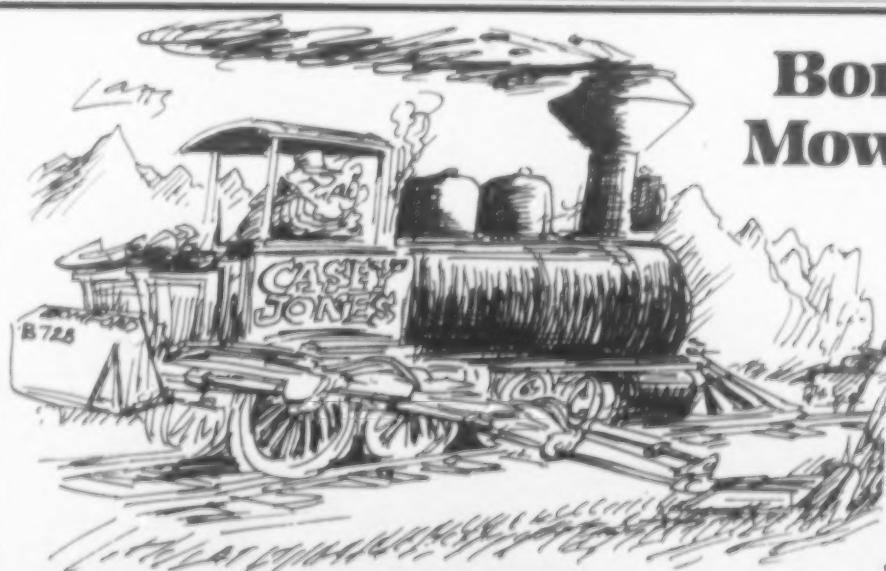
But even then, we are leaving out two important elements. One is replacement parts that are not shipped to the agricultural market by original equipment manufacturers but by other vendors. Another element is the retail finance volume generated by the sales of everything—new and used wholegoods, repair services, rentals and parts.

Shipments Of Farm Equipment

(In millions of dollars except as noted)

Item					Percent Change		
	1987 ¹	1988 ¹	1989 ²	1990 ³	1987-88	1988-89	1989-90
Industry Data							
Value of shipments ⁴	6,872	7,134	7,724	8,198	3.8	8.3	6.1
Value of shipments (1987\$)	6,872	6,940	7,287	7,535	1.0	5.0	3.4
Total employment (000)	56.9	57.0	58.1	58.9	0.2	1.9	1.4
Production workers (000)	39.0	39.1	39.9	40.5	0.3	2.0	1.5
Average hourly earnings (\$)	11.23	11.30	11.40	—	0.6	0.9	—
Product Data							
Value of shipments ⁴	6,390	6,636	7,253	7,742	3.8	9.3	6.7
Value of shipments (1987\$)	6,390	6,455	6,842	7,116	1.0	6.0	4.0
Trade Data							
Value of imports	1,835	2,207	2,375	2,518	20.3	7.6	6.0
Value of exports	1,580	1,911	2,315	2,547	20.9	21.1	10.0

¹Industry and product data are preliminary. Trade data are adjusted to conform to the 1987 SIC. ²Estimated, except for exports and imports. ³Estimated. ⁴Forecast. ⁵Value of all products and services sold by establishments in the farm machinery and equipment industry. ⁶Value of products classified in the farm machinery and equipment industry produced by all industries. SOURCE: U.S. Department of Commerce; Bureau of the Census; International Trade Administration (ITA). Estimates and forecasts by ITA.



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Ten-Year Summary of Test Reports, 1980-1989

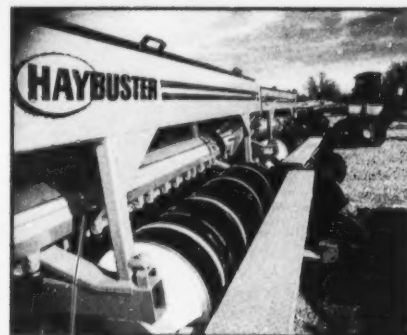
MAKE AND MODEL OF TRACTOR	Test No.	Fuel Used	Weight With Ballast	Lbs. Ballast Carried	No. of Cylinders	ENGINE			Rated RPM	Max. PTO HP at Rated Engine RPM	Std. PTO RPM	Max. PTO HP Std. PTO RPM	Max. Drawbar HP	MPH at Max. Drawbr. HP	FUEL CONSUMPTION (HP Hours Per Gallon) at:-				
						Bore and Stroke	Displacement Cu. in.	Max. PTO HP at Std. PTO RPM							PTO Average at Varying Power	Max. Available Power	75% of Pull Max. Power	50% of Pull at Max. Power	
835 Series 3 12 Speed SN. 835-83-036769																			
& higher	1482	Die.	27980	3595	6	5.50x6.00	855	2100	200.30	1009	200.30	181.14	5.34	25687	15.82	11.86	14.45	12.74	10.45
836 Manual	1566	Die.	25960	1300	6	4.921x5.354	611	2100	192.54	1008	192.54	170.56	4.83	24123	17.71	13.80	15.59	14.11	11.99
836 Powershift	1567	Die.	25995	1535	6	4.921x5.354	611	2100	181.04	997	181.04	161.45	6.77	24723	16.65	12.56	14.80	13.34	11.24
856 Powershift	1568	Die.	28000	2920	6	4.921x5.354	611	2100	209.28	997	209.28	185.04	5.88	26479	17.24	13.22	15.35	13.59	11.40
875 Series 3 12 Speed SN. 875-83-057906																			
& higher	1483	Die.	29500	3870	6	5.50x6.00	855	2100	252.67	1008	252.67	227.48	5.65	26725	16.82	13.06	15.25	13.73	11.82
876 Manual	1569	Die.	29500	4540	6	4.921x5.354	611	2100	---	---	---	233.92	6.53	27703	---	---	16.85	15.68	13.65
895 12 Speed	1335	Die.	32500	7880	6	5.50x6.00	855	2100	---	---	---	261.63	6.45	29402	---	---	15.15	13.72	11.57
936 Manual	1570	Die.	32385	5260	6	5.50x6.00	855	2100	---	---	---	260.45	6.78	29495	---	---	15.47	14.04	12.09
1150 8 Speed	1482	Die.	46500	11360	6	6.25x6.25	1150	2100	---	---	---	400.29	5.92	43219	---	---	15.84	14.64	12.35
White																			
2 30 8 Speed	1373	Die.	3853	848	3	3.386x3.386	91.4	2600	28.33	540	24.50	25.81	8.35	2816	12.03	10.27	10.77	11.42	9.61
2 35 8 Speed	1374	Die.	3970	800	3	3.386x4.02	108.4	2400	32.84	540	30.94	30.37	8.00	2978	12.68	10.86	11.23	11.73	10.35
2 45 20 Speed	1395	Die.	6630	660	4	3.858x3.82	169.3	2250	43.73	540	36.62	37.32	3.97	4455	12.70	11.25	10.96	11.00	9.66
2 55 16 Speed	1466	Die.	7055	860	4	4.02x3.94	199.4	2200	53.32	540	45.74	48.49	4.88	5037	14.89	12.38	13.35	13.21	11.39
2 62 20 Speed	1396	Die.	6875	635	4	4.016x4.33	219	2200	61.46	540	54.25	51.63	6.05	4695	16.31	13.85	13.76	13.49	12.08
2 65 16 Speed	1467	Die.	7110	790	4	4.02x4.65	235	2200	62.50	540	55.40	56.67	6.51	4827	16.19	12.91	13.94	13.20	11.29
2 75 16 Speed	1486	Die.	9625	1705	6	4.016x4.33	329	2200	75.39	1000	75.64	65.05	6.04	6487	15.86	12.69	13.62	12.74	10.79
2 88 18 Speed	1487	Die.	13615	0	6	3.875x5.00	354	2200	86.78	1007	86.78	74.67	6.51	9486	15.71	12.02	13.01	12.21	10.48
100	1614	Die.	14485	545	6	4.02x4.72	359	2400	94.36	1000	93.48	82.57	5.97	13629	14.97	12.91	13.94	13.20	11.29
2 110 18 Speed	1468	Die.	13955	0	6	3.875x5.00	354	2200	110.52	1007	110.52	94.90	6.40	9500	16.77	11.86	12.77	11.80	10.15
120	1615	Die.	15315	850	6	4.02x4.72	359	2200	119.13	1000	121.94	104.69	6.62	14286	16.94	13.27	14.19	13.08	10.84
140	1616	Die.	15665	1000	6	4.02x4.72	359	2200	138.53	1000	140.30	125.01	6.17	15060	17.49	13.11	14.76	13.57	11.49
160	1607	Die.	18850	1560	6	4.49x5.32	504.5	2200	162.47	1000	165.97	142.74	6.24	18055	17.78	14.29	15.39	14.58	12.62
4 175 Field Boss	1375	Die.	20420	0	8	4.50x5.00	636	2600	151.69	1000	151.29	133.72	6.39	19905	15.50	13.11	15.45	14.34	12.29
185	1608	Die.	18770	1620	6	4.49x5.32	504.5	2200	187.55	1000	192.38	167.72	6.18	18318	17.35	14.19	15.21	14.34	12.40
4 225	1558	Die.	24140	0	8	4.50x5.00	636	2600	195.65	1002	195.65	170.57	5.47	22845	15.40	12.06	13.64	12.42	10.44
4 270	1559	Die.	30650	0	6	4.75x6.00	638	2100	239.25	1000	242.30	211.70	6.40	27180	16.69	13.60	14.53	13.53	11.90
Yanmar																			
YM226D	1442	Die.	3380	1080	3	2.95x3.35	68.7	2600	19.42	540	17.87	16.14	4.78	2073	15.07	11.67	11.92	10.93	9.26
YM276D	1443	Die.	4110	1405	3	3.31x3.35	86.2	2600	23.00	540	22.82	18.93	5.78	2412	14.35	11.06	11.08	10.57	8.90
YM336D	1444	Die.	5020	1615	3	3.31x3.54	91.3	2600	26.98	540	25.63	23.00	6.28	3086	14.27	11.32	11.39	10.66	9.64
Zetor																			
5245/5211	1571	Die.	7295	385	3	4.02x4.33	164.6	2200	42.51	540	40.10	38.44	5.79	5955	16.56	13.17	14.59	13.83	12.10
6245/6211	1601	Die.	8535	885	4	3.94x4.33	211	2200	53.09	540	50.23	47.43	5.57	6332	16.06	13.04	13.84	13.34	11.50
7245/7211	1572	Die.	8565	725	4	4.02x4.33	219	2200	58.28	540	54.91	52.52	5.95	6356	16.82	13.51	14.36	13.90	12.33
7745/7711	1602	Die.	10360	2455	4	4.02x4.72	239	2200	65.74	540	62.17	57.56	6.63	7484	17.01	13.94	14.30	13.72	12.05

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VIRGINIA DEALERSHIP GIVES 100 PERCENT

IMPLEMENT & TRACTOR

The Business Magazine of the Agricultural, Industrial & Outdoor Power Equipment Industry



VOLUME 105 No. 5

MAY 1990

Scott Nesbitt New I&T Editor

Scott Nesbitt, Lawrence, Kans., has been named editor of *Implement & Tractor* magazine, according to Tommy Keith, I&T publisher.

Nesbitt served as managing editor for *Implement & Tractor* from 1982 to 1986. Since then he has been copy editor for the Lawrence (Kans.) *Journal-World*.



NESBITT

During his previous stint with I&T, Nesbitt wrote feature articles and was in charge of the *Manufacturers Edition*. He also helped coordinate.

(See NESBITT, pg. 19)

Air Controls Could Force Big Changes

By SCOTT NESBITT

ANTI-SMOG LAWS in California and political wrangling in Washington are painting a grim picture of the future for the off-highway machine business—everything from bulldozers and tractors to lawnmowers and chainsaws may have to be drastically changed to fit new emission control rules.

"Many dealers and farmers don't realize that the diesel engine may be outlawed by what the state's talking about doing," says Gene Feil, president of the Far West Equipment Dealers Association. His organization is urging members to write letters, mobilize their customers or do whatever they can to push

(See CLEAN, pg. 3)



G.H. BRIDGES, manager of Hood Equipment Co., in Batesville, Miss., says the gap narrowing between the equipment demands of the large average Mississippi Delta farmers and small hill producers, both of whom are served by the dealership.

Delta Vs. Hill Customer

Diversity Poses Challenge

By SCOTT MCCLURE

GIL BRIDGES can drive 10 miles to the west of Hood Equipment Company, the Case IH dealership he manages in Batesville, Miss., and find himself deep into the flat, agriculturally rich Mississippi River Delta.

If he goes 10 miles to the east of the dealership, he is in the heart of the state's hill country, where farms are considerably smaller and spread out over a greater area.

And although he believes the gap in the size of equipment being used by farmers in both areas is narrowing, knowing how to serve both

the delta and hill customer, with their different needs and ways of doing business, is essential to the success of the dealership.

"Since I have been here, our business has probably been about 50-50 between the delta and hills," says Bridges, who came to Hood (See DIFFERENT, pg. 6)

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CLEAN AIR

(From pg. 1)

enactment of a federal law blocking California's plan to impose off-road emission laws on Nov. 15, 1990.

The emission controls proposed by the California Air Resources Board (CARB) "could create severe equipment impacts which may include forcing some model machines out of production and others to bear substantial performance, reliability, weight and size penalties—possibly leading to several years of depressed new equipment sales" wrote John H. Crowley, director of engineering and safety programs for the Equipment Manufacturers Institute, which is taking the lead role in an industry-wide coalition that is attempting to work with California regulators while keeping a second front working to get Washington to stop the state from acting.

Of key importance to industry officials is how Washington deals with the issue of preemption—the federal government prohibiting individual states from adopting emission control laws that differ from a federally-developed national standard.

The first federal Clean Air Act, passed in 1967, preempted states from regulating automobile emissions. But the act included an exemption to preemption for any state that already had emission standards in place. California was the only state that qualified for the exemption, and for the last two decades automakers have built two kinds of cars—some for federal emission standards, the rest for California's.

The high volume of the car business made it feasible to build two levels of emission controls, but makers of tractors, bulldozers and other machines believe their sales volumes are too low to justify the added costs, should California be allowed to go its own way with emission controls. An even worse scenario: Development of separate emission standards by each of the 50 states and perhaps some of the cities and counties within them.

What's keeping some industry leaders awake nights is the fact that when the U.S. Senate earlier this year passed a clean air bill that carried support of both Democrats and Republicans, there was no provision for preemption. That moves the battle to the House, which is tentatively slated to vote on the bill in mid-May, and then send it to a House-Senate conference committee that could come back with a final package after the Memorial Day recess. If that package lacks preemption, industry's final hope would be that President Bush would veto the bill.

While waiting for the Washington action to unfold, machinery builders are trying to work with the California regulators. EMI is leading the effort with large-machine builders, while the Outdoor Power Equipment Institute is coordinating efforts in the lawn-and-garden and utility small-engine fields.

The situation at OPEI illustrates the frantic feeling in the industry. OPEI officials in the third week of

April told member companies to show up at a May 3 meeting in Chicago, bringing along technical data on current emissions, the number of old engines now out in the field, information on current and future research into emissions, and anything else that might bear on the matter. But when they called the meeting, OPEI staffers weren't exactly sure when the industry would actually meet with CARB staff to discuss the issues.

"We were told it might be May 28 or later, maybe in the first week of June," said an OPEI staff member. "This whole thing caught us by surprise, and now it's rush, rush, rush, but wait, wait, wait. It's just a little maddening."

CARB public information spokesman Bill Sessa told I&T that manufacturers should not have been surprised by the recent surge of action by the state.

He noted that California started regulating emissions in the 1960s and CARB had, through the years, issued numerous policy directives affecting all manner of machines,

along with pollution sources like factories and homes. When relevant portions of the federal Clean Air Act expired in 1987 and no replacement program was immediately proposed, he said, CARB converted its policy statements into a legislative package that was enacted into law as the California Clear Air Act of 1988.

Acting on those new laws, CARB set in motion a six-prong initiative to regulate all non-highway engine air pollution sources.

The first three categories were "heavy duty" vehicles over 40 horsepower; miscellaneous farm and construction machines under 40 horsepower, and utility engines such as those on garden tractors, lawnmowers, string trimmers and the like. The other three categories cover boats, trains and off-road cycles.

Some categories, like the one for small engines, are relatively indefinite as to specific allowable emission levels, but Sessa said the standards for off-road heavy-duty vehicles were easier to develop because

(See CLEAN, pg. 22)

Industries Band Together To Pursue Emission Goals

By SCOTT NESBITT

If politics truly does create strange bedfellows, then the issue of legislating emissions for off-road vehicles must certainly fit the definition.

Rather than each manufacturer heading off in its own direction in dealing with the California Air Resources Board and the legislative bodies in the nation's capital, major manufacturers and industry associations have banded together as the Off-Highway Mobile Equipment Coalition.

The lead role has been taken by the Equipment Manufacturers Institute, as when EMI President Emmett Barker testified last September before a Senate subcommittee that was considering clean air legislation. Coalition members include J.I. Case Co., Caterpillar Inc., Deere & Co., Ford New Holland Inc., Kubota Tractor Inc., Engine Manufacturers Association, Construction Industry Manufacturers Association, National Marine Manufacturers Association and Westinghouse Electric's Thermo King division, a maker of diesel-powered refrigeration units used in highway trucks.

The coalition's founding statement of principles argues:

"It is not appropriate or workable to require that off-road diesel engines meet the same emission standards and compliance timetables that are mandated for on-road diesel engines. The differences with regard to engine function, engine size, engine configuration, and low engine production volume require both different control strategies and different testing methods."

"We believe that a comprehensive and reliable study of the non-road equipment industry's contribution to air quality problems is essential prior to any reasonable program of regulation. Such a study would provide a much sounder basis than now exists for deciding whether and what emissions controls on non-road engines are justified. If upon reviewing the results of a thorough study, the EPA administrator concludes that controls are warranted, he should have the authority to impose them, after taking the following factors into account: The expected improvement in air quality; the time required to develop and effective emissions control technologies; apply them to a wide range of dissimilar engines, reflect produce and install the redesigned engines; the time required to develop test cycles that reasonably represent the wide variety of duty cycles found in non-road vehicles; and the costs of compliance to the industry and its customers."

"Any forthcoming legislation should contain provisions to protect for off-road engine emission regulations. The complexity and low-volume problems previously mentioned make even more acute the problem of trying to make different requirements fit many different

INDUSTRY UPDATE

Deutz-Allis's Ratliff: \$7.2 Million in 1990

ROBERT J. Ratliff, president and chief executive officer of Deutz-Allis Corp., told a group of dealers that the company plans to make a profit in 1990 of \$7.2 million after interest and taxes.

In 1989, D-A had a loss of \$1.6 million after interest and taxes, said Ratliff. "Keep in mind that in 1987, we experienced a loss greater than \$85 million and in 1988, there was a loss of more than \$28 million."

He said that the plan to reach profitability this year is "pretty much based on a no-nonsense business-as-usual philosophy, which doesn't expect significant growth from 1989, despite forecasts of an improved

market this year."

He said that some 1989 expense items will not be repeated this year. The company put \$8 million into the Cleaner Combine plant at Independence, Mo., "including rearranging the production line, installing machine centers and adding new pieces of equipment." Also involved were overtime costs to keep combine production going while the plant was being upgraded.

The company also had some extra costs in modifying and updating its Parts Distribution Div. at Batavia, Ill.

Ratliff made the remarks to 100 top Deutz-Allis dealers in February at Sanibel Island, Fla. □

EMI Courtship With CIMA Appears Finally Over

AVOTE by the Construction Industry Manufacturers Association on March 20 firmly rejected a proposal to join CIMA with the Equipment Manufacturers Institute, 71 against and 37 in favor.

In a letter to Phil Jenkins, EMI chairman, Ronald W. Davis, chairman of CIMA, said: "Unfortunately, there were more barriers to overcome (in our efforts to develop a single trade association to represent the interests of the construction industry) than we were able to deal with....It is my sincere hope that our two associations can set any differences aside and find a way to

work together on those issues and problems that are of mutual concern."

In a separate news release, CIMA announced establishment of a group for "light equipment manufacturers." The group is intended to provide services specifically for manufacturers of hand-held, walk-behind and portable construction equipment.

CIMA is based at 111 E. Wisconsin Ave., Suite 940, Milwaukee, Wis. 53202, telephone 414/272-0943. EMI is based at 410 N. Michigan Ave., Chicago, Ill. 60611, telephone 312/321-1470. □

Sales remain strong through 1st quarter

Equipment	U.S. - UNIT RETAIL SALES					
	March			January-March		
	1990	1989	% Change	1990	1989	% Change
Farm Wheel Tractors:						
2-Wheel Drive						
Under 40 HP	3,722	3,975	(6.4)	8,174	8,436	(3.0)
40 & Under 100 HP	3,466	3,375	2.8	8,191	7,600	7.8
100 HP & Over	2,702	1,900	42.2	6,024	4,944	21.8
Total 2-Wheel Drive	9,890	9,150	8.1	22,389	20,980	6.8
Total 4-Wheel Drive	484	388	24.7	1,131	947	19.4
Total Farm Wheel Tractors	10,374	9,538	8.8	23,520	21,927	7.3
Combines (Self-Propelled)	618	317	95.0	1,402	878	58.5

MF's 1989 Net Sales Over \$1.28 million

IN THE fiscal year ended Jan. 31, 1990, Massey-Ferguson had net sales of \$1.284 million, down \$39 million from the \$1.323 million posted for the prior year. MF is a part of Varsity Corp.

MF's sister company, Perkins Engines, had a \$47 million sales increase during the year, producing \$621 million in volume. Automotive products experienced a \$125 million increase to \$437 million and sales of other Varsity operations declined from \$76 million to \$40 million.

Varsity had total net sales of \$2.382 billion, a \$97 million increase on the previous fiscal year. Net income rose from \$82 million to \$92 million.

Victor Rice, chairman and chief executive officer, said the MF and Perkins groups improved already impressive performances. "While worldwide industry retail sales of farm machinery remained virtually level," he said, "MF raised operating income due to higher margins, the result of a more profitable sales mix and continuing focus on rigid cost controls. At the same time, revenues dipped slightly as a result of weakened demand for industrial machinery. Perkins, including Pacoma hydraulic products, registered higher sales, largely as a consequence of new customers...." □

Britain, Italy Dominate Production

By MICHAEL WILLIAMS

BITAIN IS still at the top of the West European league table for tractor production after 40 years, but the big numbers are all from the North America-based multinational companies.

The British-owned County, Marshall and Tractor Marshall brands make only a small contribution.

Italy is second in the league, with an increase in production from the SAME-Huaidong-Lombardini factory helping to cancel out the downturn at Fiat and Landini. Germany is Europe's third biggest producer, but production there has been moving downward.

Massey-Ferguson remains the biggest producer, claiming about 20 percent of tractor production in the

western world, followed by Fiat, Ford New Holland and Case-IH.

Among the tractor brands names that were once part of the scene that have since disappeared, Italy's Tracoll and Simal, France's Saurat, Sweden's Volvo, Britain's Massey, David Brown and John

Deere.

Production in Western Europe is expected to stay at existing levels or show a small increase over the next two years. But in the long term, there is some concern that the easing of trade barriers with Eastern Europe will

cause a sharp increase in the sale of low-priced tractors (U.S.S.R., Czechoslovakia, East Germany, Poland, Yugoslavia, etc.) and that this will hurt the sales of the west. □

European Tractor Makers: Who and Where (1988 Production)

Country	Britain	Italy	W. Germany	France	Others	Total
Massey-Ferguson	51,000	10,000		5,800	200	67,000
Fiat		51,500			2,500	54,000
Ford New Holland	42,000				3,500	45,500
Case-IH	15,000	200	9,000	7,800		32,000
Deere			26,000		5,000	31,000
SAME group		17,000				17,000
KHD (Deutz + MB-trac)			17,000			17,000
Fendt			11,000			11,000
Renault		500		7,500		8,000
Steyr					7,000	7,000
Valmet					5,000	5,000
Landini		4,050		50		4,100
Ebro					4,000	4,000
Others	900	5,500	300		200	6,900
Total	108,900	88,750	63,300	21,150	27,400	309,500

MAY 1990

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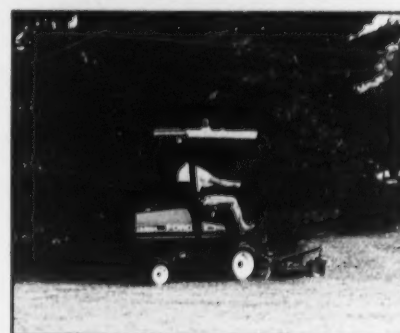
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Verbatim. White-House Men and Younger. Data reported as miscellaneous are retail sales which cannot be classified by state or as U.S. government. They include sales and shipments that do not go through usual marketing channels such as gifts to non-profit organizations, individuals or religious leaders, or

SLUMPING SMALL TRACTOR SALES OF MINOR CONCERN

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The Business Magazine of the Agricultural, Industrial & Outdoor Power Equipment Industry



VOLUME 105 No. 6

JUNE 1990



IMPORTS IMPORTANT: Martin says Kubota line helped beef up sales when larger farmers weren't buying big tractors in the '80s.

Tractor Rentals Key To Successful Sales

By T.J. BURNHAM

DIVERSIFICATION. Leasing. Rentals. Imports. At Cranston International in Woodland, Calif., all play importantly in meeting challenges of the '90s.

"Change was important for dealers in the '80s," says assistant general manager Gary Martin. "It will be even more vital in the current decade."

Given IH's merger with Case in the last decade, saying change (See CRANSTON, pg. 11)

OPEI Show On Record Pace

Expo Stresses New Trends

By SCOTT NESBITT

HEADING INTO its seventh year, the Louisville Expo is expanding once again, this time to more fully accommodate interest in the commercial turf-care market. The show will run Sunday, July 29 to Tuesday, July 31.

Also on the agenda of many dealers attending the show will be the impact on the industry of the recent wave of buyouts and mergers that is reducing the number of independent suppliers, and the issue of how equipment manufacturers are responding to the trend toward cities, counties and states prohibiting lawn and garden waste, from grass clippings to tree branches, from being dumped in existing landfills.

For the experienced visitor to the Outdoor Power Equipment Institute's annual machine-fest, the most obvious change will be the creation of a new four-acre outdoor demonstration reserved for commercial turf products. By mid-May, 95 percent of the available space in the new area had been reserved by some 36 manufacturers whose products covered the spectrum of commercial interests, from string trimmer line sold in bulk to five-figure front-deck mowers designed for the high-volume mowing contractor, golf course or park district.

For the dealer starting to dabble in commercial equipment, or those hesitant to take the plunge without more knowledge, the commercial demonstration area should be a real plus. Most obvious is that the

equipment will be concentrated in one space, so it won't be mixed in with lawn chairs and barbecue grills. Factory experts, often the company president and chief engineer, are on hand to discuss the nuts and bolts and financing terms and stocking conditions.

A second big benefit is that the Expo is making special efforts to attract commercial end-users to the show. Last year's Expo drew 868 attendees who identified themselves (See EXPO, pg. 8)

Bagging Out, Mulching In

By SCOTT NESBITT

IS THIS THE end of the bagging mower? Will mechanics once again learn how to true up a reel and put an edge on a bed knife, as citizens revert to the non-polluting era of clickety-clacking non-power push mowers?

Things may not get that dire, but it's certain that big changes are underway in the matter of getting the grass cut, largely due to government concerns about landfills getting loaded up with grass clippings instead of real trash. At least 26 states have passed or are studying legislation to outlaw clippings and leaves from landfills, and many cities and counties have already passed such prohibitions.

Dealers who sold their customers (See MULCH, pg. 12)

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New Products Showcased at Expo

Turfgrass managers can find anything from wishing wells to new shredder lawn mowers, and a lot of stuff in between, much on display for the first time, at this year's International Lawn, Garden and Power Equipment Expo.

New machinery is a powerful attractant to the annual show and manufacturers often save some of their best secrets to unveil here.

The wishing well is a new product from Bloomers Unlimited. The company will also show a new landscaping bridge.

Excel Industries will unveil its new

Hustler Turbo-Shredder, a mowing deck that eliminates the need to collect clippings.

Billy Goat Industries will debut a new suction sweeper and two blowers, all Honda-powered.

Deines Corp. has a new zero-tuning radius, direct-drive lawn mower.

E-Z Rake has a complete line of vacuums for front-mount mowers and commercial models of the EasyVac.

Other mowing equipment to be shown for the first time at Expo in-

cludes: Several new Husqvarna models, new Kohler engines, a redesigned flail cutting head from R.L. Parsons and new engine and drive train components from Tecumseh.

Also, Jacobsen will unveil a new 21-inch rear-bagging commercial mower; Homelite will display recently released mulchers and Yazoo will debut a new walk-behind and a new riding mower.

Generac will display a new generator; Homelite has a new pump and 21st Century, Inc., has new fuel cans.



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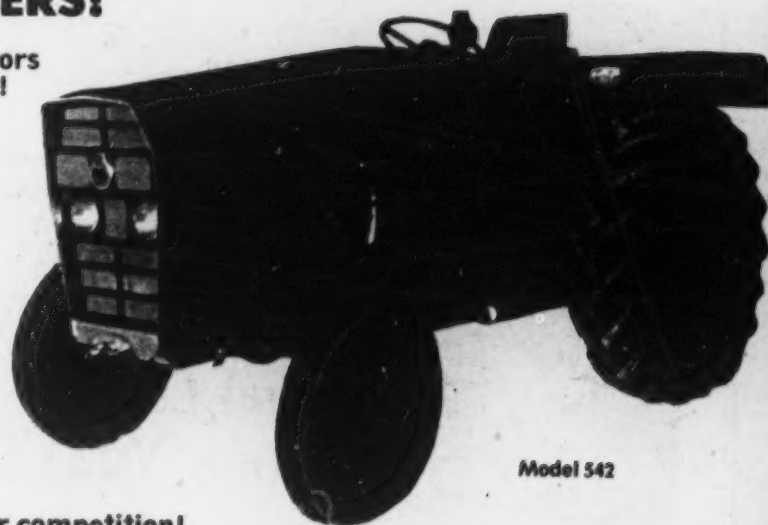
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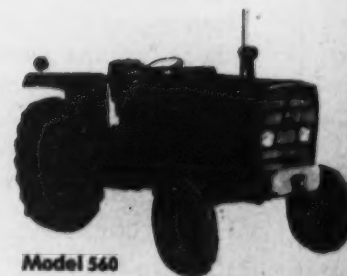
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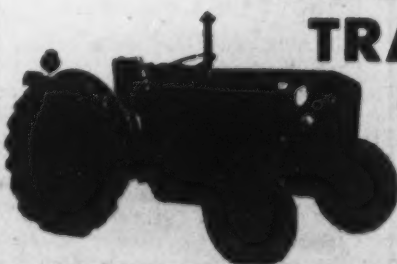
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INDUSTRY UPDATE

Combines Lead Way As Sales Increase

Combine sales rose a whopping 104.6 percent in April compared to the same month last year, helping big-ticket equipment sales remain strong for the year. Solid gains continued for the month and year in 4-wheel-drive tractors and 2-wheel-drive tractors over 40 pto horsepower. A downturn in sales of tractors under 40 horsepower continued, although this segment remained the volume leader in the report of U.S. retail sales issued by the Equipment Manufacturers Institute.

Equipment	U.S. - UNIT RETAIL SALES					
	April		% Change	January-April		% Change
	1990	1989		1990	1989	
Farm Wheel Tractors:						
2-Wheel Drive						
Under 40 HP	5,442	5,722	(4.9)	13,710	14,148	(3.1)
40 & Under 100 HP	4,659	3,894	19.6	12,860	11,494	11.9
100 HP & Over	2,850	2,397	18.9	8,874	7,341	20.9
Total 2-Wheel Drive	12,951	12,013	7.8	35,444	32,983	7.5
Total 4-Wheel Drive	684	507	34.9	1,815	1,454	24.8
Total Farm Wheel Tractors	13,635	12,520	8.9	37,259	34,437	8.2
Combines (Self-Propelled)	749	366	104.6	2,351	1,244	89.0

Ford New Holland Awards Suppliers

Ford New Holland honored 26 supplier companies March 13 with its "Q1 Preferred Quality Award," given for "continued excellent quality performance in providing parts to Ford New Holland."

Robert M. Gerrity, FNH president, gave each supplier a commemorative plaque and a flag to fly at each of their plants.

The honored companies: Aggressive Mfg.; Casco Products Corp.; Crotty Corp.; Dayco Products; Eaton Corp. Hydraulics Division; Federal-

Mogul Corp. (three plants honored); Forward Mfg. Co.; Garlock Bearings, Inc.; Gencorp Automotive, Engineered Elastomers Division;

Geneva Rubber Co.; Goshen Rubber Co.; Indiana Mills & Mfg., Inc.; J&L Mfg.; Kokomo Spring Co.; Lasuren Mfg.; LTV Steel Tubular Products Co.; Lucas Automotive, Inc.; National Castings, Inc.; Nelson Division; Peterson Spring; Production Rubber Products; Protective Closures Co.; Torrington Co.; and Whitehead Co. □

Claas '89 Sales — \$641 Million

Claas GmbH of West Germany has reported sales in the fiscal year ended Sept. 30, 1989, of \$641 million. The maker of combines and hay equipment said that sales were up 9.8 percent from the prior year. Net profit was approximately \$58 million, up 34 percent.

Claas claims the lead in the West European combine market with a 24-percent share. The total market is about 15,000 units.

Claas derives 44 percent of its sales volume from combines, 13 percent

from forage harvesters, 9 percent from balers, 6 percent from green harvest machinery (mowers, tedders, etc.) and 28 percent from other products, including sugar cane harvesters, forklifts and parts and accessories.

Claas of America in 1989 began producing combines with the Mobil-Trac system in conjunction with Caterpillar Industrial Products, Inc. The Indiana-based subsidiary had its most profitable year in history, the company said. □

White-New Idea Scales Back Output

Production of White-New Idea farm machinery will be scaled back to adjust output to market conditions, according to Charles Lunger, chief operating officer of the Allied Products Corporation, parent company of the agricultural equipment firm.

Lunger said the reduction affects operations in Charles City, Iowa, and Coldwater, Ohio, and will help reduce field inventory.

"We will resume production at

more normal levels next year," he said. "Simply put, we've got too many tractors out in the field."

Lunger said White-New Idea had good sales through the first three months of the year, and was getting its share of the general upturn in the farm machinery business.

Allied Products, he said, was also scaling back in some of its automotive operations, primarily because it was near completion of a large one-time order for stamping presses. □

J I Case Reports '89 Record Sales, Earning

RACINE, WISC.—J I Case has reported record sales and earning for 1989.

Case, a wholly owned subsidiary of Tenneco, Inc., had a recording operating profit of \$228 million on sales of \$5.8 billion, compared with an operating loss of \$142 million on sales of \$4.3 billion in 1988.

In the fourth quarter of 1989, Case posted an operating loss of \$39 million and sales of \$1.2 billion during the same period in 1988.

The \$228 million profit in 1989 is an improvement of \$435 million over the company's \$207 million loss in

1987.

"The dramatic turnaround in the North American agricultural economy can be traced in the financial performance of J I Case in the late 1980s," said J I Case spokesman Roger Zuehl.

"We're doing better because our customers are in their best financial shape since the 1970s. As farm income increased and producers unloaded heavy burdens of debt, they began replacing aging machinery with new, state-of-the-art equipment," he said. □

ANSI Honors Fleckenstein

Donald C. Fleckenstein, past president of the U.S. National Committee of the International Electrotechnical Commission and former manager of industry standards for General Electric, was presented with the American National Standards Institute's Astin-Polk International Standards Medal for his "distinguished service to world trade and understanding among nations through his participation in international standardization."

The award was presented to Fleckenstein in conjunction with the Institute's 1990 Public Conference, "Standardization in the 90s: Success in a Global Market" in Washington, D.C.

As president of the U.S. National Committee of the IEC, 1982-1989, and as a member of the commission for 23 years, Fleckenstein has pro-

vided leadership in promoting the adoption and use of voluntary standards and in improving U.S. relationships with other nation's delegations to IEC.

"His lifetime involvement and personal commitment to international standardization has made him one of the earliest forerunners of worldwide standards harmonization," said James N. Pearse, ANSI chairman and group vice president of engineering, Leviton Manufacturing Co.

Among numerous other accomplishments, he is responsible for strengthening the U.S. position of influence in the IEC decision process and actively enhancing the awareness of the U.S. standards community on the importance of international standardization. □

Canadian farm machinery sales were generally sluggish through the first three months of this year, with farm wheel tractors down 7.3 percent overall compared to 1989. The Canadian Farm and Industrial Equipment Institute noted in releasing the figures that there is some optimism that may stimulate sales in news of government monetary assistance to help farmers carry out seeding intentions.

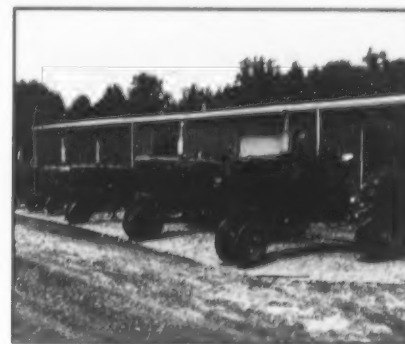
Canada Report Retail Sales In Units

Equipment	March			March-YTD		
	1990	1989	% Chg.	1990	1989	% Chg.
Farm Wheel Tractors						
2WD under 40 H.P.	226	246	-8.1%	609	561	8.6%
2WD 40-99 H.P.	506	669	-24.4%	1,354	1,764	-23.2%
2WD 100 H.P. & Over	262	200	31.0%	567	532	6.6%
Total 2WD	994	1,115	-10.9%	2,530	2,857	-11.4%
Total 4WD	109	99	10.1%	396	299	32.4%
Total Farm Wheel Tractors	1,103	1,214	-8.1%	2,926	3,156	-7.3%
COMBINES						
Self Propelled	55	25	120.0%	153	105	45.7%
Pull Type	3	8	-62.5%	14	42	-66.7%
BALERS						
Rectangular Balers	33	38	-13.2%	111	159	-30.2%
Round Balers	117	92	27.2%	284	323	-12.1%
SWATHERS						
Self Propelled	23	17	35.3%	57	72	-20.8%
Pull Type	18	13	38.5%	49	58	-15.5%
FORAGE HARVESTERS						
Shear Bar Type	20	13	53.8%	51	54	-5.6%
MOWER CONDITIONERS	92	111	-17.1%	231	279	-18.0%

DEALER THRIVES ON GENERIC APPROACH

IMPLEMENT & TRACTOR

The Business Magazine of the Agricultural, Industrial & Outdoor Power Equipment Industry



VOLUME 105 NO. 7

JULY 1990

For Smalltown, USA

"Personal" Approach Necessity

By SCOTT MCCLURE

A farmer dressed for the fields interrupts the Saturday morning interview with Gary McClung, owner of McClung Equipment Company here, to barter over a piece of hay equipment.

"When do you need it?" asks

McClung.

"Yesterday," answers the farmer.

"You ought to be cutting hay. I'll get it right out to you," says McClung, excusing himself as he goes to get the implement ready and arrange for delivery.

It's a side of McClung's business that's apparent throughout the mor-

ning, as farmers come in to look at equipment, talk shop or just discuss the weather.

As a tractor and implement dealer in this small Ozark Mountains town, serving a customer base primarily made up of farmers with small livestock and hay operations, McClung says taking a "personal" ap-

proach is a necessity.

"This isn't an urban area where you can expect a lot of one-time shopping," he explains. "We rely on our repeat customers, so we have

(See MCCLUNG, pg. 12)

"Half" Effort: Two Goals

By CALVIN PIGG

Looking for a way to bring customers into your dealership under the banner of community service?

A Texas dealer met with surprising success with what it billed as a farm equipment safety awareness seminar last winter.

"Our farmers and industrial equipment users tell us they're also concerned about rising workmen's compensation insurance costs, the threat of liability judgments and lost-time accidents in the use of equipment so we decided to respond and promote safety awareness for our customers," explains Terry Barbee, general manager of Barbee-Neuhaus Implement Co. of Weslaco, Texas.

"The key was to pull together the right experts, and we were able to do it."

The half-day seminar featured some gory videos of accident victims and an outside demonstration on the dangers of by-pass starting a tractor.

"Before the session was over, the participants actually warmed up to the subject matter," Barbee said. "We had a lot of oohs and ahs."

The seminar was promoted by a personal letter from Barbee to the dealership's 600 customer list and at-

(See SAFETY, pg. 13)



TRACTORS SOLD by Gary McClung, owner of McClung Equipment Company, have to be able to handle a loader with an exceptionally large basket, since many of the machines will be used to move litter in poultry houses.

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INDUSTRY UPDATE

Sales Stay Strong: Inventory Offered

Continuing a trend seen since the year began, sales of combines and all tractors over 40 horsepower continued on the upswing through May. Combines were particularly strong, up 88 percent over 1989. The Equipment Manufacturers Institute announced it will release field inventory data for the products covered in the flash report. The April inventory figures were released along with the May report.

U.S. - UNIT RETAIL SALES

Equipment	May			January-May			April 1990 Inventory* N. American & U.S. Field
	1990	1989	% Change	1990	1989	% Change	
Farm Wheel Tractors:							
2-Wheel Drive							
Under 40 HP	5,393	5,730	(5.9)	19,226	19,878	(3.3)	47,721
40 & Under 100 HP	4,021	3,353	19.9	16,980	14,847	13.8	22,545
100 HP & Over	1,665	1,562	6.4	10,537	8,908	18.4	11,259
Total 2-Wheel Drive	11,079	10,645	4.1	46,743	43,633	6.9	81,525
Total 4-Wheel Drive	669	567	18.2	2,394	1,881	26.8	3,830
Total Farm Wheel Tractors	11,748	11,212	4.8	49,137	45,514	7.7	85,355
Combines (Self-Propelled)	813	441	84.4	3,109	1,685	84.1	5,187

*The Agricultural Equipment Statistics Committee has voted to have the latest inventory data for products listed on the Flash report be published.

4-Wheel Units Move—Remainder Sluggish

Sales of most farm machinery and implements for the first four months of 1990 remained below 1989 levels in Canada, reversing the typical pattern of the northern nation staying in step with U.S. sale trends. The Canadian Farm & Industrial Equipment Institute, in releasing April sales figures, noted that only large four-wheel-drive units appeared to be moving well in the West. The CFIEI traced some of the weak sales to concerns over government policies favoring high interest rates.

U.S. - UNIT RETAIL SALES

Equipment	April			April-Ytd.		
	1990	1989	% Change	1990	1989	% Change
Farm Wheel Tractors:						
2-Wheel Drive						
Under 40 HP	352	383	-8.1	972	944	3.0
40 & Under 100 HP	731	833	-12.2	2,071	2,597	-20.3
100 HP & Over	359	358	0.3	927	890	4.2
Total 2-Wheel Drive	1,442	1,574	-8.4	3,970	4,431	-10.4
Total 4-Wheel Drive	182	157	15.9	578	456	26.8
Total Farm Wheel Tractors	1,624	1,731	-6.2	4,548	4,887	-6.9
Combines						
Self-Propelled	64	41	56.1	217	146	48.6
Pull Type	7	3	133.3	22	45	-51.1
Balers						
Rectangular Balers	75	83	-9.6	186	242	-23.1
Round Balers	288	184	56.5	572	507	12.8
Sixers						
Self-Propelled	29	14	107.1	86	86	0.0
Pull Type	12	9	33.3	61	67	-9.0
Forage Harvesters						
Shear Bar Type	25	20	25.0	76	74	2.7
Mower Conditioners	163	162	0.6	394	423	-6.9

Deere Elects Top Execs

To fill some positions vacated by the June 1 retirement of Deere & Co. Chairman Robert A. Hanson, the firm's board of directors has elected Hans W. Becherer, previously president and chief executive officer, to chairman and chief executive officer.

David H. Stowe Jr., formerly executive vice president, was elected to president and chief operating officer. Several other elections were also announced.

Becherer, 55, joined Deere & Co. in 1962 and served in European marketing and management positions before being elected in 1977 as vice president for marketing operations in Latin America, Australia and the Far East. He was elected senior vice president of the overseas farm and consumer products division in 1983, and also elected executive vice president, worldwide farm equipment and consumer products. He joined the board of directors in February 1986, was elected president and chief operating officer in April 1987, and became president and chief executive officer last August.

Stowe, 53, joined Deere & Co. in 1968 and held several management positions in North America and overseas. He was appointed vice president in charge of overseas marketing for the industrial equipment division in 1981 and was elected senior vice president in charge of the division in 1982, when he also joined the board of directors. He was elected executive vice president of the worldwide agricultural equipment and consumer products division in 1987.

Elected to succeed Stowe as executive vice president was Bill C. Harpole, 56, who had been senior vice president, worldwide parts and logistics division. Harpole was also elected to the board of directors.

The board also elected Bernard L. Hardiek to senior vice president, worldwide parts and logistics division, succeeding Harpole. Hardiek, 50, previously was vice president for business development, planning and taxation, a post he assumed in 1988. He joined Deere & Co. in 1979 as director of taxes, after 17 years with the Internal Revenue Service.

The board reached outside the corporate structure and also elected to the board of directors Crandall C. Bowles, who since 1982 has been president of The Springs Co., a South Carolina based business with a variety of interests including manufacturing, insurance, a railroad, machine tool operations and real estate developments. □

H.M. Catalog Highlights Drive Belt Components

H.M. Mfg. Co. has a 24-page catalog highlighting its custom and standard belt drive system components.

H.M. Mfg., 509 Estes Ave., Schaumburg, IL 60193; Phone 708-980-9293.

VINEYARD TECHNOLOGY

IMPLEMENT & TRACTOR

The Business Magazine of the Agricultural, Industrial & Outdoor Power Equipment Industry



VOLUME 105 NO. 8

AUGUST 1990

Creative Ads Lure Small Operator



KEEPING PLENTY OF SMALL TO mid-sized tractors in stock is one secret to Eddie Black's success.

By JIM HUDSON

EDDIE BLACK is a master at meeting his customers' needs, often before they have realized the needs themselves.

That special talent helped him sell 100 new Massey-Ferguson tractors his first year in business and 60 new tractors the first half of this year, through Black Enterprises of York, S.C.

Only one of his customers was a farmer. Most of the rest are small landowners (from five to 15 acres) who work in the Charlotte, N.C., area and live in the country.

"They make a good salary and they own a little land," Black said. "You show me one normal, red blooded American male who lives in the country who doesn't want a tractor. It's my job to convince them they can afford the tractor they want."

Black uses frequent, local newspaper advertising to get potential customers into his business. He writes the advertisements himself and runs the ads in cooperation with two nearby Massey-Ferguson dealers.

"Massey pays me 30 percent of (See BLACK, pg. 4)

Royal Touch Pulls Thousands to Ag Expo

By CAL PIGG

A farm show where blue jeans are out of place—even crisply pressed jeans?

Blue jeans just aren't up-scale enough for the Royal Show, the annual national agricultural exhibition of Great Britain. There was nothing casual about either the attire or the curiosity of the 200,000 coat and tie adorned farmers and farm supply representatives, plus several thousand foreign visitors, who attended the most recent extravaganza here.

Indeed an up-scale agricultural show, this is the British farmer's touch with royalty, his annual social event and his review of what's new in agricultural technology.

Where else can you find plant breeders growing their new crop releases in well-tended plots for visitors to inspect, 10 acres of farm

machines and 7,000 head of livestock on display at the same place—1,200 trade exhibits in all?

Where else can you gather information on red deer farming for venison production, wild boar production for meat consumption, or learn how to thatch a roof from wheat straw?

The 151st annual show held this summer at the National Agriculture Center near Stoneleigh in central England is a showplace for British agricultural technology as this country strives to hold its own and turn new sod among nations in a fast-changing world.

In opening remarks to this year's exhibition, David Scott, chairman of the Council of the Royal Agricultural Society of England, said "Agriculture and food is a global business and likely to be more so, and it is in

(See ROYAL, pg. 7)

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INDUSTRY UPDATE

Sales Stay Healthy Through 1st Half

The first six months of the year saw robust farm machinery sales, especially among combines and the higher-horsepower tractor categories, where price tags and profits should be best for dealers' bottom lines. Figures from the Equipment Manufacturers Institute, which now include inventory levels, show the industry with about six-months worth of stock on hand except in tractors under 40 hp, where inventories were nearly as large as the roughly 47,000 small tractors sold in all of 1989.

U.S. - UNIT RETAIL SALES

	June			January-June			May 1990 Inventory
Equipment	1990	1989	% Change	1990	1989	% Change	N.A. Factory & U.S. Field
Farm Wheel Tractors:							
2-Wheel Drive							
Under 40 HP	5,400	6,130	(11.9)	24,639	26,007	(5.3)	45,200
40 & Under 100 HP	4,515	3,951	14.3	21,409	18,790	13.9	22,470
100 HP & Over	1,304	1,287	1.3	11,841	10,190	16.2	11,797
Total 2-Wheel Drive	11,219	11,368	(1.3)	57,889	54,987	5.3	79,467
Total 4-Wheel Drive	465	292	59.2	2,749	2,093	31.3	2,682
Total Farm Wheel Tractors	11,684	11,660	.2	60,638	57,080	6.2	82,149
Combines							
(Self-Propelled)	951	766	24.2	4,117	2,451	68.0	5,239

Fiat, Ford Form New Company

Fiat Group and Ford Motor Company announced recently that they have reached an agreement involving their worldwide tractors, farm and industrial equipment operations.

A new company, to be formed, will incorporate Fiat's subsidiary FiatGeotech and Ford New Holland. Fiat will have an 80% majority interest. Ford will hold the remaining 20% and will receive a cash payment from Fiat. The agreement to form the new company is subject to governmental approvals.

The new company intends to preserve the individual market and product identities of both FiatGeotech and Ford New Holland.

FiatGeotech is based in Italy, and has plants in Italy, Brazil, France and the United States. FiatGeotech has over 13,000 employees and relies upon 2,300 dealers worldwide. Its revenues in 1989 reached \$2.3 billion. Ford New Holland is headquartered in New Holland, Pennsylvania, and employs almost 18,000 people in plants and offices, primarily in the United States, Canada, Great Britain, Belgium and Brazil. There are 3,700 Ford New Holland dealers worldwide. Revenues in 1989 were \$2.8 billion.

Based on their 1989 results, FiatGeotech and Ford New Holland had sales of 95,000 agricultural tractors and an additional 30,000 tractors

produced in joint ventures or under license. Sales of other agricultural and industrial products totalled more than 54,000 units.

Cesare Romiti, Fiat's president and chief executive officer, said, "Our primary objective, in creating this new company, is to profit from the existing strengths of the two subsidiaries. We recognize that these two organizations, when combined, will complement each other remarkably well with a truly global presence in virtually every world market. This arrangement, once again demonstrates Fiat's longstanding tradition of internationality."

Ford Motor Company's president and chief operating officer, Philip E. Benton, Jr., said: "Fiat considers agricultural and industrial equipment to be an integral part of its core business strategy and stands ready to support the new company in the continued development of best-in-class products of the highest quality." He also said that, "Ford is confident that this arrangement is in the best interests of Ford New Holland's employees, customers, dealers and suppliers."

As the majority shareholder in the new company, Fiat intends to provide substantially comparable pay and benefit packages to Ford New Holland employees and the honor existing collective bargaining agreements.

Deutz to Market Ruggerini Engines

Deutz Corp. of Atlanta, Ga., has reached agreement to handle North American marketing of a number of smaller diesel engines from Ruggerini Motori S.p.A. of Reggio Emilia, Italy. The move extends the Deutz range downward with a line of modern high-speed models.

Deutz will provide parts and service for Ruggerini engines already operating in North America and handle future sales and service support. The engines will be sold under the Deutz-Ruggerini name. Deutz's U.S. sales topped \$100 million last year. Ruggerini, established in 1919, makes about 45,000 diesels annually.

EMI on the Move

The Equipment Manufacturers Institute will soon have a new address: 10 S. Riverside, Chicago, Ill. That's almost diagonally across The Loop from the long-term address at 410 N. Michigan in the Wrigley Building. The move is expected to take place in mid-August.

Injuries Reduced

Should a customer be unable to accept the "deadman" controls and other safety features of your walk-behind lawnmowers, here's something to advise them: injuries from the little grass grinders are down about 40 percent between 1984 and 1989, according to the Consumer Products Safety Commission. The safety equipment became industry-standard in 1982. This according to a recent Outdoor Power Equipment Institute newsletter.

Another study found that animals, not machines, are the largest single source of injury to farmers.

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IMPLEMENT & TRACTOR

The Business Magazine of the Agricultural, Industrial & Outdoor Power Equipment Industry



VOLUME 105 NO. 9

SEPTEMBER 1990

'Cat' Dealer Tracks Customers

By T.J. BURNHAM

IN THE LAND where the brand was named, Caterpillar dealers are plowing fresh farm furrows of sales opportunities, capitalizing on the increasing popularity of those "new" rubber-track Challenger 65s.

In California, where the tracklayer was developed and popularized by Caterpillar-founders Best and Holt—engineering leaders who in-

roduced the non-wheel variety well before World War I put their treads on tanks—revolutions in the industry are ongoing.

Best and Holt, who also put the first diesel tractor on line in this nation, pioneered the tracklayer in the US, finally merging to form Caterpillar in 1924.

Now, says a northern California dealer, new history is being made by the company.

"The Challenger 65 has met with great popularity among farmers," says ag salesman Wes McKeen, who heads up farm sales at Tenco, the big Sacramento Valley "Cat" dealer located near Sacramento.

"With the introduction of the rubber track three years ago, some farmers wanted to wait to see how it would work. Now, we're seeing a steady growth in sales as producers have had a chance to look at

neighbor's machines, or their own rented Challengers."

Caterpillar is rich in California heritage. Best, in Stockton, California, and Holt, headquartered in San Leandro nearby, gave crawlers their heritage. Suddenly, mule skimmers who drove animal-tugged harvesters became known as "Cat" skimmers, piloting the clanking, puffing and heavier track machines instead of

(See BIG, pg. 12)

Ford, Fiat Merger Brings Speculation

By SCOTT NESBITT

THE FORD-FIAT merger, if approved by various governments, would create the world's largest farm/construction machinery company and give the new firm a broader range of products than either of them has at present.

Mounds of details must be ironed out, and governments here and abroad must give their blessing to the union, but the prospect of the merger taking place has given rise to some interesting facts and some rampant conjecture about the two organizations.

"I really don't know that much about them, but my gut feeling on Fiat is I'd rather be playing with these guys than against them," commented Ron Kohlert, chairman of the Ford New Holland North American dealer council.

Kohlert, of Highline Farm Equipment, Wetaskiwin, Alberta, Canada, said there's a generally positive reaction to Fiat's agreement to take 80 percent control of a new company that would be formed out of FNH

(See FORD-FIAT, pg. 8)



CHALLENGER 65s, like this one, are making bold new inroads into tracklaying tractor sales throughout California, explains Tenco salesman Wes McKeen.

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Program Will Train "Generic" Mechanics

Because servicing dealers are often frustrated in the search for competent mechanics, the National Equipment Servicing Dealers Assn. plans to offer "generic" training courses aimed at the small-engine business but teaching many skills transferable to all levels of mobile machinery.

"An entry-level trainee has little chance of obtaining a general overview of procedures in the service industry," says a news release on the program from NESDA Executive Director Norman Beck. "... the servicing dealer who funds a trainee's learning experience is almost immediately in jeopardy of losing that

employee to 'greener pastures.' These problems are real. They are significant. To some, they are overwhelming."

Having had negative experience with public school programs, the release said, "many of NESDA's people now feel it is necessary to find solutions elsewhere. Today's public schools are often mired down with internal politics, ambitious social agendas, and a lack of performance accountability. This industry has few alternatives but to solve its own problems with its own aggressive efforts."

"NESDA believes the job can be done. NESDA believes that it is

uniquely positioned to lead the effort. NESDA, not affiliated with any brand, can call upon all brand suppliers to assist in specific ways as it delivers a 'generic' program in major regional areas. Many cooperative suppliers could contribute facilities, materials, people and possibly even funding."

Suppliers, dealers and individuals with an interest in the project are asked to contact Norman Beck, Executive Director, NESDA, PO Box 2116, Peoria, AZ 85380-2116. NESDA's phone number is (602) 566-0997.

THIS IS THE REASON YOU'LL SWITCH TO RADIALS.

THE NEW HI-TRACTION LUG RADIAL FROM ARMSTRONG.

Compared with bias ply tires, radials have a larger 'footprint' and deeper tread depth. So, for a given size, there's more tread on the ground. Yes, they can cost more, but the extra expense is more than offset by longer tread life and fuel savings.

Still, a lot of farm equipment owners remain unconvinced.

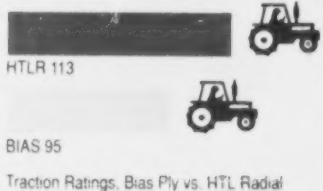
THE CONTROVERSY IS OVER.

Now comes compelling proof of the improved performance of radial tires ... fully implemented for the first time in the new Armstrong Hi-Traction Lug Radial.

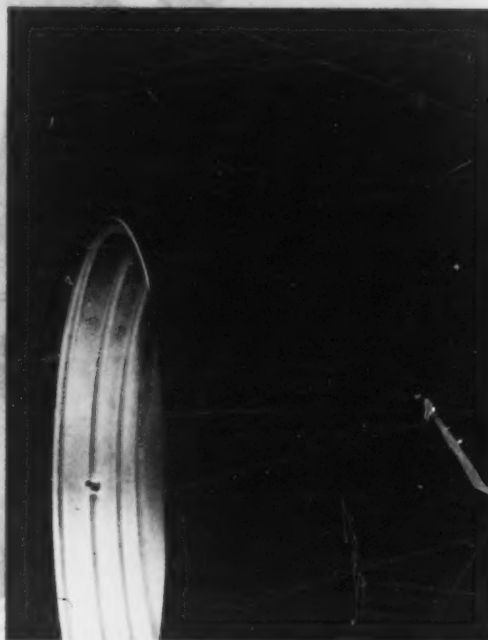
Picture a tire with a whopping 18 percent improvement in traction compared with our bias ply tire. What's more, the HTL Radial delivers a 12 percent improvement in wear even compared with our own agri-tough Super Hi-Power Lug Radial! But compared with our closest competitor...well, frankly, there is no comparison.

WITH SUCH GREAT TRACTION, WHO WOULD EXPECT REDUCED VIBRATION, TOO?

The remarkable thing about the new HTL Radial is that it beats the pants off other radials for reduced tire vibration. Measured against our Super Hi-Power Lug Radial, for example, vehicle testing showed an astonishing 50 to 66 percent reduction in vibration.



HTL 113
BIAS 95
Traction Ratings, Bias Ply vs. HTL Radial



So far so good. But, with the lugs closer together, special design provisions had to be made to ensure that soil wouldn't clog the space between the lugs. An accomplishment verified by real-life evaluations in various types of soils.

As the HTL Radial's specially curved long bar-medium bar design evolved, it became apparent to the designers that they had achieved a breakthrough — a tire with greatly reduced vibration that not only doesn't compromise traction, but actually improves on it.

DO WE BELIEVE IN THIS TIRE?

The new HTL Radial is a significant technological achievement. One that will undoubtedly set standards in tractor tire design for years to come. But equally important, it follows in the Armstrong tradition of building the most reliable tires on or off the road. Which is why the rugged HTL Radial is covered by an eight-year standard limited warranty, the most extensive warranty in the industry. Plus it's covered for five years against field hazards and stubble damage! Nobody protects your tire investment like Armstrong.

ALL THE WAYS YOU'LL SAVE.

■ Even greater traction means you'll cover more ground in the same amount of time and save on fuel costs.

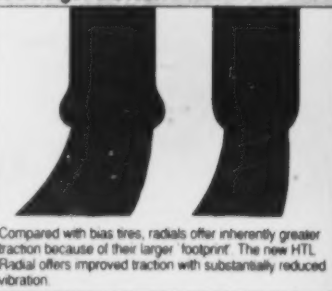
■ Slower wear-out means longer tire life.

■ Reduced vibration means fewer vibration-related equipment problems and improved operator comfort.

■ And, Armstrong's eight-year standard limited warranty will save you a lot of sleepless nights, too.

Visit your Armstrong dealer for a look at the amazing new Hi-Traction Lug Radial. And while you're there, see the complete line of Armstrong rhino-tough tires for farm, truck and passenger cars.

Tell them Tully the Rhino sent you.

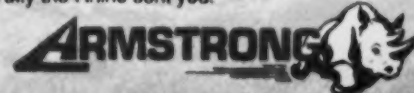


Compared with bias tires, radials offer inherently greater traction because of their larger footprint. The new HTL Radial offers improved traction with substantially reduced vibration.



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INDUSTRY UPDATE

Sales Surge Slows

July sales of larger 2wd tractors slowed considerably during July, compared to earlier months of 1990, but sales of 4wd tractors and combines remained buoyant, continuing the year's trend of large increases for big-ticket items compared to 1989.

With the prospect of inflation and economic slowdown triggered by the Mideast situation, analysts turn a critical eye toward field inventory figures. Data from the Equipment Manufacturers Institute shows June inventory figures about equal to seven months worth of 1990 sales in all market brackets except for the under-40-hp tractors, where the supply is more on the order of 10 months.

Excessive inventory creates a situation where there's more in-brand and cross-brand units available to customers, driving sale prices down while forcing higher inventory carrying costs, and thus reducing dealer profits.

U.S. - UNIT RETAIL SALES

Equipment	July			January-July			June 1990 Inventory
	1990	1989	% Change	1990	1989	% Change	N.A. Factory & U.S. Field
Farm Wheel Tractors:							
2-Wheel Drive							
Under 40 HP	3,769	4,410	(14.5)	28,585	30,417	(6.0)	43,073
40 & Under 100 HP	3,101	2,953	5.0	24,547	21,743	12.9	21,754
100 HP & Over	894	884	1.1	12,725	11,074	14.9	12,142
Total 2-Wheel Drive	7,764	8,247	(5.9)	65,857	63,234	4.1	76,969
Total 4-Wheel Drive	298	238	25.2	3,049	2,331	30.8	2,565
Total Farm Wheel Tractors	8,062	8,485	(5.0)	68,906	65,565	5.1	79,534
Combines (Self-Propelled)	980	869	12.8	5,097	3,320	53.5	5,197

Expo Breaks Records

By SCOTT NESBITT

AN ELEVEN growth in attendance pushed the seventh International Lawn, Garden & Power Equipment Expo in Louisville over its previous record for participation, according to the sponsoring body, the Outdoor Power Equipment Institute.

The Expo wrap-up reported 24,793 people had showed up at the July 29-31 show, either staffing one of the 594 indoor exhibits or the 139 outdoor exhibits, or strolling the aisles as a visitor.

Visitors came from across the nation and around the globe, with 1,381 being international participants. Among members of the buying audience, the breakdown was: 40 percent retailers/dealers; 19 percent distributors; 16 percent manufacturers reps/agents; 11 percent trade visitors; 9 percent landscapers/commercial mowing contractors; 5 percent merchandise buyers.

The landscaper/commercial mowing contingent was of special interest to the exhibitors who took the 45 outdoor exhibit spaces set aside in a special commercial equipment area located in an area that has a large drainage ditch, making it ideal for testing mowers designed for use on hillsides.

OPEI President Dennis C. Dix asserted that "Expo continues to prove itself as the U.S. marketplace for international trade in lawn and garden products and outdoor power

equipment. I truly thought the show had reached its zenith, but I'm delighted it continues to grow."

The show has become a site for competitions, especially the Innovative Products Award sponsored by Lawn & Garden Marketing Magazine. There were 10 awards issued this year from among the 52 products entered by 46 manufacturers.

Overall winner was the zero-turning-radius commercial walk-behind mower from Scag Power Equipment, Inc. The machine's hydrostatic drive allows a zero turn by powering one of the two drive wheels forward while the other is powered in reverse, eliminating the chance of scuffing turf that occurs when the operator of a conventional drive mower locks one wheel and uses it as the pivot point for a U-turn.

Other power equipment winners were the Poulan/Weed Eater for its ClipQuik cordless trimmer; Red-Max/Komatsu Zenoah America Inc. for its model EBA 440 backpack power blower with electric start; Shindaiwa Inc. for its Tornado brushcutter blade, which uses teeth somewhat like chainsaw teeth; Technic Tool Corp. for its power pruner, which mounts a chain saw blade or circular cutting blade on the end of a telescoping tube enclosing a solid drive shaft, and the Sipap Electronics Inc. Maintenance Meter, which automatically records usage hours of engines that can't normally be fitted with an hour meter.

Non-powered award winners were

Wallace, A Fiskars Co. for both the notch hedge shears and bypass lopper; Koos, Inc. for its 12 lb. jug of Safe Step Ice Melter with spreader cap; and Vemco Inc. for its Sure Pour pouring spout.

Another popular feature of the show, the All-American Engine Repair Championship, drew 250 entrants who showed their mechanical skill, in both written and performance tests, to claim the title of best small-engine mechanic in the nation, in a test sponsored by the Engine Service Association. Winners get cash awards and the engine they repaired in the hands-on contest. The top three winners and finalists in each engine division were:

Briggs & Stratton: Michael Harlan, Victorville, Calif., first; Richard Sawyer, Gallatin, Tenn., second; Timothy Steele, Louisa, Ky., third; Kenneth Smith, Milesburg, Pa., Randy Larson, Lake City, Iowa., and Kevin Covington, Louisville, Ky.,

finalists.

Tecumseh: Rodney Rom, Butler, Mo., first; Dan Denhard, New Albany, Ind., second; David Scales, Versailles, Ky., third; Ralph Feeback, Arvada, Colo., Dan Rick, Anderson, Ind., and John Fetty, Buckhannon, W. Va., finalists.

Kohler: James Schneider, Olney, Ill., first; Rodney Rom, Butler, Mo., second; Mike Neu, Shelbyville, Ind., third; George Nelson, Fillmore, Ill., George Woodson, Shepherdsville, Ky., and William Hart, Bardstown, Ky., finalists.

Cash prizes for the contest, open to any servicing dealer or mechanic who joins the fray, were: \$1,000 first place; \$600 second place; \$400 third place; \$200 finalists. All 17 in the final test kept the engine they repaired.

Expo 91, the eight annual running, is slated for July 28-30, the same Sunday through Tuesday schedule that worked well this year. □

Case Introduces 4-WD Tractors

Case International has introduced a new line of four-wheel drive tractors to U.S. agriculture.

The new 9200 Series line includes five articulated and two rigid-frame models with easier-shifting transmissions, quieter cabs and improved service features.

Some models also have increased horsepower over previous 9100 Series tractors.

Case International is the only farm equipment manufacturer to offer a full-line of four-wheel drive tractors that includes rigid frame and articulated models.

"We spent countless hours in the field with farmers finding out how to improve our product line," says Ron Morishita, Case International four-wheel drive product manager.

The introduction of a new four-wheel drive line continues the process of constant re-evaluation and reinforces the Case commitment to building quality products that give our customers total satisfaction.

"The new models feature 'skip-shift' transmissions which shift from first to fourth to sixth to eighth gear in three seconds," Morishita explains.

"This allows the operator to get up to speed faster making planting or incorporating chemicals easier and more accurate. For normal tillage operations and starting out with heavy field loads, the operator may still shift through each gear sequentially."

With the skip-shift controller, a third reverse speed of eight mph is available. "The faster reverse speed improves cycle times and productivity in dozer and silage applications," Morishita says.

The deluxe 9200 Series cab has been enhanced with ROPS post padding, monitor mounting studs, new seat suspension, two convenient storage compartments, side and rear window wipers, a coat hook, sun

visor, a beverage holder and new AM/FM radio. Helical gears on the upper transmission shaft assure smooth operation and a quiet operating environment.

All the 9200 Series tractors are protected by an exclusive, full-protection, five year/5,000 hour warranty. The warranty replaces the two year/2,000 hour warranty offered on the 9100 Series four-wheel drive tractors.

A \$200 deductible applies to each repair after the first year of ownership.

"The five year/5,000 hour warranty is our way of backing up our tractors' reputation for reliability and durability," Morishita says. "It's also a demonstration of our continuing commitment to help our customers farm profitably after the sale."

The rigid-frame, medium-chassis 9240 and 9260 tractors share over 85 percent of their parts with the new articulated models.

Both of these tractors feature turbocharged, aftercooled engines, full powershift transmissions, redesigned chassis and cab, and a choice of wheels to fit a wide variety of farming operations.

The 9240 is rated at 235 horsepower and the 9260 at 300 horsepower.

"Our new rigid-frame tractors are easy to service with readily available parts," Morishita says.

"The new design incorporates the latest tractor technology into a rigid-frame chassis."

Articulated-frame models include the:

- 9210...200 horsepower.
- 9230...235 horsepower.
- 9250...300 horsepower.
- 9270...335 horsepower.
- 9280...375 horsepower.

"The large-chassis 9270 and 9280 will continue to offer all the best-like features of the 9170 and 9180 respectively, the most popular

(See CASE, pg. 18)